

Exhibit E

Exhibit E - U.S. Patent No. 8,589,541 (“’541 Patent”)

Accused Instrumentalities: smartphones, basic phones, tablets, laptops, and hotspot devices sold (including those sold in bundles with data plans) or used by T-Mobile and all versions and variations thereof (“Accused Instrumentalities”) since the issuance of U.S. Pat. No. 8,589,541 (the “Asserted Patent”).

Claim 1

Claim	Public Documentation
[1a] A non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to:	<p>The Accused Instrumentalities include “A non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to.”</p> <p>For example, T-Mobile sells and uses devices described by T-Mobile’s website below (e.g., devices made by Samsung, Apple, Motorola, Google, Nokia, etc.). These devices constitute a wireless end-user device as described in claim 1. <i>See, e.g.</i> https://www.t-mobile.com/cell-phones</p>

Claim

Public Documentation

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0310

Nokia

G310 5G

Starting at

Monthly\$0\$2.00For 24 months

Today\$0\$0down + tax

Full price: \$168.00

IF YOU CANCEL WIRELESS SERVICE, REMAINING BALANCE ON DEVICE BECOMES DUE. For well qualified buyers. 0% APR. Qualifying service req'd

Credit approval, deposit, qualifying service, and, in stores & on customer service calls, \$35 assisted support, upgrade support or device connection charge due at sale. Equipment Installment Plan: 0% APR. If you cancel wireless service, remaining balance on device becomes due. Availability and amount of EIP financing subject to credit approval. Down payment & unfinanced portion required at purchase. Balance paid in monthly installments. Must remain on qualifying service in good standing for duration of EIP agreement. Late/non-payment fees may apply. Participating locations only. Examples shown reflect the down payment & monthly payments of our most creditworthy customers; amounts for others will vary.

Need help ordering?

; see also <https://www.t-mobile.com/tablets>; <https://www.t-mobile.com/smart-watches>; <https://www.t-mobile.com/hotspots-iot-connected-devices>.

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Claim	Public Documentation																																		
	<p>As a specific example, Nokia’s devices, including the Nokia G310 5G, are wireless end-user devices which run the Android Operating System, and include a processor. <i>See, e.g.</i>, https://www.t-mobile.com/cell-phone/nokia-g310-5g:</p> <div><div><h3>Additional spec details</h3><table><tr><td>Battery Description</td><td>5000 mAh</td></tr><tr><td>Ports</td><td>USB Type-C, 3.5mm Jack</td></tr><tr><td>Connectivity</td><td>NFC, Bluetooth 5.1, Wi-Fi 802.11 b/g/n/ac MU-MIMO+</td></tr><tr><td>Processor</td><td>Qualcomm® Snapdragon™ 480 + 5G Octa-core Mobile Platform, 2 x 2.2 GHz + 6 x 1.8 GHz</td></tr><tr><td>Operating System</td><td>Android</td></tr><tr><td>Ram</td><td>4 GB</td></tr><tr><td>Maximum Expandable Memory</td><td>1 TB</td></tr><tr><td>Wireless Network Technology Generations</td><td>4G LTE, 5G</td></tr><tr><td>Supported Email Platforms</td><td>Apple Mail, POP3, IMAP4, SMTP, Microsoft® Exchange, AOL, AIM, Yahoo!® Mail, GMail</td></tr><tr><td>Hearing Aid Compatibility</td><td>M4, T3</td></tr><tr><td>WEA Capable</td><td>true</td></tr><tr><td>Mobile Hotspot Capable</td><td>true</td></tr><tr><td>Frequency</td><td>GSM: 850 MHz, 900 MHz, 1800 MHz, 1900 MHz; UMTS: Band I (2100), Band II (1900), Band IV (1700/2100), Band V (850); 5G: n77, n25, n41, n66, n71; LTE: 1, 2, 3, 4, 5, 7, 8, 12, 13, 17, 20, 25, 26, 38, 39, 40, 41, 66, 71</td></tr><tr><td>Weight</td><td>6.81 Ounces</td></tr><tr><td>Length</td><td>0.34</td></tr><tr><td>Height</td><td>6.5</td></tr><tr><td>Width</td><td>2.98</td></tr></table></div><div><h3>What's in the box</h3><ul style="list-style-type: none">Nokia G310 5GSIM PinQuick Start GuideSafety Booklet1m USB Type C to C cable<p>For WEA capability, see T-Mobile WEA</p><p>California residents: see the California Proposition 65 WARNING</p></div></div>	Battery Description	5000 mAh	Ports	USB Type-C, 3.5mm Jack	Connectivity	NFC, Bluetooth 5.1, Wi-Fi 802.11 b/g/n/ac MU-MIMO+	Processor	Qualcomm® Snapdragon™ 480 + 5G Octa-core Mobile Platform, 2 x 2.2 GHz + 6 x 1.8 GHz	Operating System	Android	Ram	4 GB	Maximum Expandable Memory	1 TB	Wireless Network Technology Generations	4G LTE, 5G	Supported Email Platforms	Apple Mail, POP3, IMAP4, SMTP, Microsoft® Exchange, AOL, AIM, Yahoo!® Mail, GMail	Hearing Aid Compatibility	M4, T3	WEA Capable	true	Mobile Hotspot Capable	true	Frequency	GSM: 850 MHz, 900 MHz, 1800 MHz, 1900 MHz; UMTS: Band I (2100), Band II (1900), Band IV (1700/2100), Band V (850); 5G: n77, n25, n41, n66, n71; LTE: 1, 2, 3, 4, 5, 7, 8, 12, 13, 17, 20, 25, 26, 38, 39, 40, 41, 66, 71	Weight	6.81 Ounces	Length	0.34	Height	6.5	Width	2.98
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Claim	Public Documentation
	For further example, the Nokia G310 5G model is sold or used by T-Mobile and includes 128GB of storage, in which control policies for applications are stored. <i>See, e.g., id.</i>

[1b] identify a service usage activity of the wireless end-user device, the service usage activity being associated with a first software component of a plurality of software components on the wireless end-user device, the service usage activity comprising one or more prospective or successful communications over a wireless network;

The Accused Instrumentalities “identify a service usage activity of the wireless end-user device, the service usage activity being associated with a first software component of a plurality of software components on the wireless end-user device, the service usage activity comprising one or more prospective or successful communications over a wireless network.”

For example, Nokia’s devices, including the Nokia G310 5G, run the Android Operating System, which includes features such as “Data Saver,” “Battery Saver,” “Extreme Battery Saver,” “Doze Mode,” “App Standby,” “Adaptive Battery,” and/or “JobScheduler” which apply to at least some service usage activities associated with a software component comprising prospective or successful communications over a wireless network e.g., when apps utilize network access, jobs, syncs, alarms, etc. *See, e.g.*, <https://www.t-mobile.com/cell-phone/nokia-g310-5g>:

Additional spec details

Battery Description	5000 mAh
Ports	USB Type-C, 3.5mm Jack
Connectivity	NFC, Bluetooth 5.1, Wi-Fi 802.11 b/g/n/ac MU-MIMO+
Processor	Qualcomm® Snapdragon™ 480 + 5G Octa-core Mobile Platform, 2 x 2.2 GHz + 6 x 1.8 GHz
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Weight	6.81 Ounces
Length	0.34
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Width	2.98

; <https://developer.android.com/training/basics/network-ops/data-saver>:

What's in the box

- Nokia G310 5G
- SIM Pin
- Quick Start Guide
- Safety Booklet
- 1m USB Type C to C cable

For WEA capability, see [T-Mobile WEA](#)

California residents: see the [California Proposition 65 WARNING](#)

Optimize network data usage

Over the life of a smartphone, the cost of a cellular data plan can easily exceed the cost of the device itself. On Android 7.0 (API level 24) and higher, users can enable Data Saver on a device-wide basis in order to optimize their device's data usage, and use less data. This ability is especially useful when roaming, near the end of the billing cycle, or for a small prepaid data pack.

When a user enables Data Saver in **Settings** and the device is on a metered network, the system blocks background data usage and signals apps to use less data in the foreground wherever possible. Users can allow specific apps to use background metered data usage even when Data Saver is turned on.

Android 7.0 (API level 24) extends the `ConnectivityManager` API to provide apps with a way to [retrieve the user's Data Saver preferences](#) and [monitor preference changes](#). It is considered good practice for apps to check whether the user has enabled Data Saver and make an effort to limit foreground and background data usage.

Check data saver preferences

On Android 7.0 (API level 24) and higher, apps can use the `ConnectivityManager` API to determine what data usage restrictions are being applied. The `getRestrictBackgroundStatus()` method returns one of the following values:

`RESTRICT_BACKGROUND_STATUS_DISABLED`

Data Saver is disabled.

`RESTRICT_BACKGROUND_STATUS_ENABLED`

The user has enabled Data Saver for this app. Apps should make an effort to limit data usage in the foreground and gracefully handle restrictions to background data usage.

`RESTRICT_BACKGROUND_STATUS_WHITELISTED`

The user has enabled Data Saver but the app is allowed to bypass it. Apps should still make an effort to limit foreground and background data usage.

Limit data usage whenever the device is connected to a metered network, even if Data Saver is disabled or the app is allowed to bypass it. The following sample code uses `ConnectivityManager.isActiveNetworkMetered()` and `ConnectivityManager.getRestrictBackgroundStatus()` to determine how much data the app should use:

; <https://developer.android.com/training/monitoring-device-state/doze-standby>:

Optimize for Doze and App Standby

Starting from Android 6.0 (API level 23), Android introduces two power-saving features that extend battery life for users by managing how apps behave when a device is not connected to a power source. *Doze* reduces battery consumption by deferring background CPU and network activity for apps when the device is unused for long periods of time. *App Standby* defers background network activity for apps with which the user has not recently interacted.

While the device is in Doze, apps' access to certain battery-intensive resources is deferred until maintenance windows. The specific restrictions are listed in [Power Management Restrictions](#).

Doze and App Standby manage the behavior of all apps running on Android 6.0 or higher, regardless whether they are specifically targeting API level 23. To ensure the best experience for users, test your app in Doze and App Standby modes and make any necessary adjustments to your code. The sections below provide details.

Understanding Doze

If a user leaves a device unplugged and stationary for a period of time, with the screen off, the device enters Doze mode. In Doze mode, the system attempts to conserve battery by restricting apps' access to network and CPU-intensive services. It also prevents apps from accessing the network and defers their jobs, syncs, and standard alarms.

Periodically, the system exits Doze for a brief time to let apps complete their deferred activities. During this *maintenance window*, the system runs all pending syncs, jobs, and alarms, and lets apps access the network.

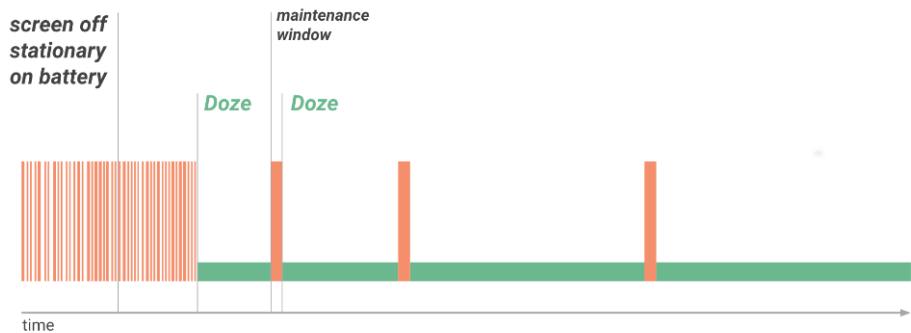


Figure 1. Doze provides a recurring maintenance window for apps to use the network and handle pending activities.

At the conclusion of each maintenance window, the system again enters Doze, suspending network access and deferring jobs, syncs, and alarms. Over time, the system schedules maintenance windows less and less frequently, helping to reduce battery consumption in cases of longer-term inactivity when the device is not connected to a charger.

As soon as the user wakes the device by moving it, turning on the screen, or connecting a charger, the system exits Doze and all apps return to normal activity.

The Doze restriction on network access is also likely to affect your app, especially if the app relies on real-time messages such as tickles or notifications. If your app requires a persistent connection to the network to receive messages, you should use [Firebase Cloud Messaging \(FCM\)](#) if possible.

; <https://developer.android.com/topic/performance/appstandby>:

App Standby Buckets

Android 9 (API level 28) and higher support **App Standby Buckets**. App Standby Buckets help the system prioritize apps' requests for resources based on how recently and how frequently the apps are used. Based on app usage patterns, each app is placed in one of five priority **buckets**. The system limits the device resources available to each app based on which bucket the app is in.

Priority buckets


The system dynamically assigns each app to a priority bucket, reassigning the apps as needed. The system may rely on a preloaded app that uses machine learning to determine how likely each app is to be used, and assigns apps to the appropriate buckets. If the system app is not present on a device, the system defaults to sorting apps based on how recently they were used. More active apps are assigned to buckets that give the apps higher priority, making more system resources available to the app. In particular, the bucket determines how frequently the app's jobs run, and how often the app can trigger alarms. These restrictions apply only while the device is on battery power; the system does not impose these restrictions on apps while the device is charging.

★ **Note:** Every manufacturer can set their own criteria for how non-active apps are assigned to buckets. You should not try to influence which bucket your app is assigned to. Instead, focus on making sure your app behaves well in whatever bucket it might be in. Your app can find out what bucket it's currently in by calling [UsageStatsManager.getAppStandbyBucket\(\)](#).

The buckets are:

1. **Active:** App is currently being used or was very recently used.
2. **Working set:** App is in regular use.
3. **Frequent:** App is often used, but not every day.
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5. **Restricted:** App consumes a great deal of system resources, or may exhibit undesirable behavior.

In addition, there's a special **never** bucket for apps that have been installed but have never been run. The system imposes severe restrictions on these apps.

	<p>; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler; https://developer.android.com/guide/background/persistent; https://developer.android.com/guide/components/services; https://developer.android.com/guide/components/activities/intro-activities; https://developer.android.com/reference/java/net/URLConnection; https://developer.android.com/training/articles/security-ssl; https://developer.android.com/reference/android/net/DnsResolver; https://developer.android.com/guide/topics/media; https://developer.android.com/media; https://developer.android.com/guide/topics/media/platform/mediaplayer.</p>
<p>[1c] determine whether the service usage activity comprises a background activity;</p>	<p>The Accused Instrumentalities “determine whether the service usage activity comprises a background activity.” For example, Nokia devices determine whether the service usage activity comprises background or foreground activity over wireless networks, e.g., when apps utilize network access, jobs, syncs, alarms, etc. <i>See, e.g.</i>, https://developer.android.com/training/basics/network-ops/data-saver:</p> <div data-bbox="594 683 1619 1117" style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <h3>Optimize network data usage </h3> <p>Over the life of a smartphone, the cost of a cellular data plan can easily exceed the cost of the device itself. On Android 7.0 (API level 24) and higher, users can enable Data Saver on a device-wide basis in order to optimize their device's data usage, and use less data. This ability is especially useful when roaming, near the end of the billing cycle, or for a small prepaid data pack.</p> <p>When a user enables Data Saver in Settings and the device is on a metered network, the system blocks background data usage and signals apps to use less data in the foreground wherever possible. Users can allow specific apps to use background metered data usage even when Data Saver is turned on.</p> <p>Android 7.0 (API level 24) extends the <code>ConnectivityManager</code> API to provide apps with a way to retrieve the user's Data Saver preferences and monitor preference changes. It is considered good practice for apps to check whether the user has enabled Data Saver and make an effort to limit foreground and background data usage.</p> </div>

Check data saver preferences

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Periodically, the system exits Doze for a brief time to let apps complete their deferred activities. During this *maintenance window*, the system runs all pending syncs, jobs, and alarms, and lets apps access the network.

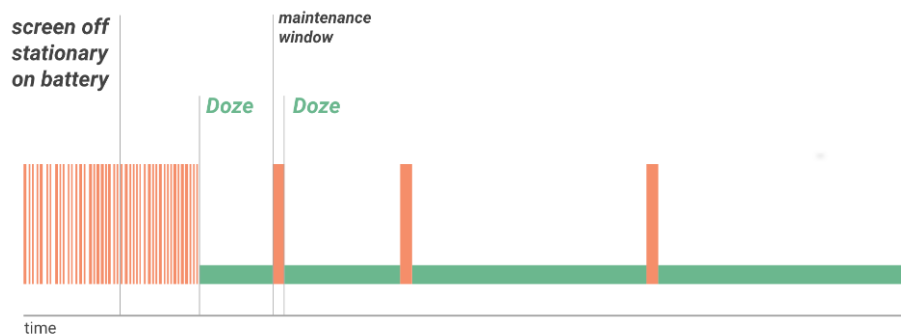


Figure 1. Doze provides a recurring maintenance window for apps to use the network and handle pending activities.

At the conclusion of each maintenance window, the system again enters Doze, suspending network access and deferring jobs, syncs, and alarms. Over time, the system schedules maintenance windows less and less frequently, helping to reduce battery consumption in cases of longer-term inactivity when the device is not connected to a charger.

As soon as the user wakes the device by moving it, turning on the screen, or connecting a charger, the system exits Doze and all apps return to normal activity.

The Doze restriction on network access is also likely to affect your app, especially if the app relies on real-time messages such as tickles or notifications. If your app requires a persistent connection to the network to receive messages, you should use [Firebase Cloud Messaging \(FCM\)](#) if possible.

; <https://developer.android.com/topic/performance/appstandby>:

App Standby Buckets

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Priority buckets

The system dynamically assigns each app to a priority bucket, reassigning the apps as needed. The system may rely on a preloaded app that uses machine learning to determine how likely each app is to be used, and assigns apps to the appropriate buckets. If the system app is not present on a device, the system defaults to sorting apps based on how recently they were used. More active apps are assigned to buckets that give the apps higher priority, making more system resources available to the app. In particular, the bucket determines how frequently the app's jobs run, and how often the app can trigger alarms. These restrictions apply only while the device is on battery power; the system does not impose these restrictions on apps while the device is charging.



Note: Every manufacturer can set their own criteria for how non-active apps are assigned to buckets. You should not try to influence which bucket your app is assigned to. Instead, focus on making sure your app behaves well in whatever bucket it might be in. Your app can find out what bucket it's currently in by calling [UsageStatsManager.getAppStandbyBucket\(\)](#).

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In addition, there's a special **never** bucket for apps that have been installed but have never been run. The system imposes severe restrictions on these apps.

; <https://developer.android.com/topic/performance/power/power-details>; <https://developer.android.com/topic/performance/background-optimization>; <https://developer.android.com/reference/android/app/job/JobScheduler>; <https://developer.android.com/guide/background/persistent>; <https://developer.android.com/guide/components/activities/activity-lifecycle>; <https://developer.android.com/guide/components/activities/process-lifecycle>;

1. A **foreground process** is one that is required for what the user is currently doing. Various application components can cause its containing process to be considered foreground in different ways. A process is considered to be in the foreground if any of the following conditions hold:

- It is running an **Activity** at the top of the screen that the user is interacting with (its **onResume()** method has been called).
- It has a **BroadcastReceiver** that is currently running (its **BroadcastReceiver.onReceive()** method is executing).
- It has a **Service** that is currently executing code in one of its callbacks (**Service.onCreate()**, **Service.onStart()**, or **Service.onDestroy()**).

There will only ever be a few such processes in the system, and these will only be killed as a last resort if memory is so low that not even these processes can continue to run. Generally, at this point, the device has reached a memory paging state, so this action is required in order to keep the user interface responsive.

; <https://developer.android.com/guide/background>:

Definition of background work

An app is running in the *background* when both the following conditions are satisfied:

- None of the app's activities are currently visible to the user.
- The app isn't running any [foreground services](https://developer.android.com/guide/components/services) that started while an activity from the app was visible to the user.

Otherwise, the app is running in the *foreground*.

; <https://developer.android.com/guide/components/services>;

Types of Services

These are the three different types of services:

Foreground

A foreground service performs some operation that is noticeable to the user. For example, an audio app would use a foreground service to play an audio track. Foreground services must display a [Notification](#). Foreground services continue running even when the user isn't interacting with the app.

When you use a foreground service, you must display a notification so that users are actively aware that the service is running. This notification cannot be dismissed unless the service is either stopped or removed from the foreground.

Learn more about how to configure [foreground services](#) in your app.

★ **Note:** The [WorkManager](#) API offers a flexible way of scheduling tasks, and is able to [run these jobs as foreground services](#) if needed. In many cases, using WorkManager is preferable to using foreground services directly.

Background

A background service performs an operation that isn't directly noticed by the user. For example, if an app used a service to compact its storage, that would usually be a background service.

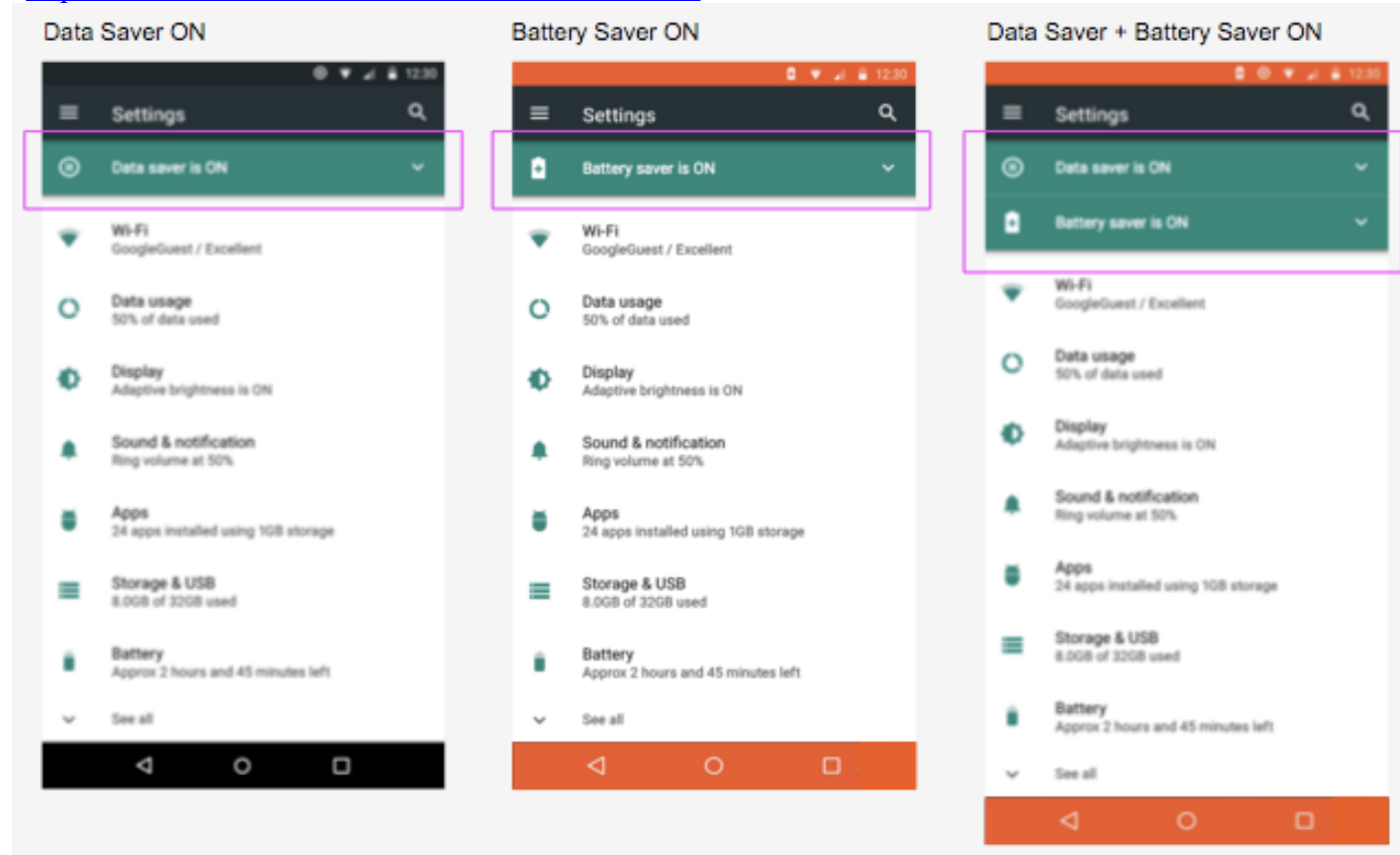
★ **Note:** If your app targets API level 26 or higher, the system imposes [restrictions on running background services](#) when the app itself isn't in the foreground. In most situations, for example, you shouldn't [access location information from the background](#). Instead, [schedule tasks using WorkManager](#).

Bound

A service is *bound* when an application component binds to it by calling `bindService()`. A bound service offers a client-server interface that allows components to interact with the service, send requests, receive results, and even do so across processes with interprocess communication (IPC). A bound service runs only as long as another application component is bound to it. Multiple components can bind to the service at once, but when all of them unbind, the service is destroyed.

	<p>; https://developer.android.com/guide/components/activities/intro-activities.</p>
<p>[1d] determine at least an aspect of a policy based on a user input obtained through a user interface of the wireless end-user device or based on information from a network element, the policy to be applied if the service usage activity is the background activity, the policy at least for controlling the service usage activity;</p>	<p>The Accused Instrumentalities “determine at least an aspect of a policy based on a user input obtained through a user interface of the wireless end-user device or based on information from a network element, the policy to be applied if the service usage activity is the background activity, the policy at least for controlling the service usage activity.”</p> <p>For example, Nokia devices include an interface which allow users to specify multiple aspects of policies based on user input in various settings (e.g., enabling/disabling Data Saver, Power Saver, Adaptive Battery, Doze features, as well as enabling/disabling policies for specific applications) for controlling service usage activities over wireless networks, e.g., when apps utilize network access, jobs, syncs, alarms, etc. <i>See, e.g.</i>, https://www.hmd.com/en_us/support/topics/battery-and-charging/i-want-to-consume-battery-life:</p> <p>I want to conserve battery life. How can I activate the Power Saver mode?</p> <p>On your phone, open Settings, then choose and activate Battery Power Saving.</p> <hr/> <p>; https://www.hmd.com/en_us/support/topics/battery-and-charging/how-can-i-access-advanced-battery-information-and-settings:</p> <p>How can I access advanced battery information and settings?</p> <p>Naviagte to Settings > Battery. Click the battery icon on charge level to open detailed battery usage information.</p>

; <https://source.android.com/docs/core/data/data-saver>:



[1e] and if it is determined that the service usage activity is the background activity, apply the policy.

The Accused Instrumentalities comprise “and if it is determined that the service usage activity is the background activity, apply the policy.”

For example, Nokia phones and tablets utilize various features (e.g., Data Saver, Power Saver, Adaptive Battery, Doze Mode) which applies the policy to background service usage activity over wireless networks, e.g., when apps utilize network access, jobs, syncs, alarms, etc. *See, e.g.,* <https://developer.android.com/training/basics/network-ops/data-saver>:

Optimize network data usage

Over the life of a smartphone, the cost of a cellular data plan can easily exceed the cost of the device itself. On Android 7.0 (API level 24) and higher, users can enable Data Saver on a device-wide basis in order to optimize their device's data usage, and use less data. This ability is especially useful when roaming, near the end of the billing cycle, or for a small prepaid data pack.

When a user enables Data Saver in **Settings** and the device is on a metered network, the system blocks background data usage and signals apps to use less data in the foreground wherever possible. Users can allow specific apps to use background metered data usage even when Data Saver is turned on.

Android 7.0 (API level 24) extends the `ConnectivityManager` API to provide apps with a way to [retrieve the user's Data Saver preferences](#) and [monitor preference changes](#). It is considered good practice for apps to check whether the user has enabled Data Saver and make an effort to limit foreground and background data usage.

Check data saver preferences

On Android 7.0 (API level 24) and higher, apps can use the `ConnectivityManager` API to determine what data usage restrictions are being applied. The `getRestrictBackgroundStatus()` method returns one of the following values:

`RESTRICT_BACKGROUND_STATUS_DISABLED`

Data Saver is disabled.

`RESTRICT_BACKGROUND_STATUS_ENABLED`

The user has enabled Data Saver for this app. Apps should make an effort to limit data usage in the foreground and gracefully handle restrictions to background data usage.

`RESTRICT_BACKGROUND_STATUS_WHITELISTED`

The user has enabled Data Saver but the app is allowed to bypass it. Apps should still make an effort to limit foreground and background data usage.

Limit data usage whenever the device is connected to a metered network, even if Data Saver is disabled or the app is allowed to bypass it. The following sample code uses `ConnectivityManager.isActiveNetworkMetered()` and `ConnectivityManager.getRestrictBackgroundStatus()` to determine how much data the app should use:

; <https://developer.android.com/training/monitoring-device-state/doze-standby>:

Optimize for Doze and App Standby

Starting from Android 6.0 (API level 23), Android introduces two power-saving features that extend battery life for users by managing how apps behave when a device is not connected to a power source. *Doze* reduces battery consumption by deferring background CPU and network activity for apps when the device is unused for long periods of time. *App Standby* defers background network activity for apps with which the user has not recently interacted.

While the device is in Doze, apps' access to certain battery-intensive resources is deferred until maintenance windows. The specific restrictions are listed in [Power Management Restrictions](#).

Doze and App Standby manage the behavior of all apps running on Android 6.0 or higher, regardless whether they are specifically targeting API level 23. To ensure the best experience for users, test your app in Doze and App Standby modes and make any necessary adjustments to your code. The sections below provide details.

Understanding Doze

If a user leaves a device unplugged and stationary for a period of time, with the screen off, the device enters Doze mode. In Doze mode, the system attempts to conserve battery by restricting apps' access to network and CPU-intensive services. It also prevents apps from accessing the network and defers their jobs, syncs, and standard alarms.

Periodically, the system exits Doze for a brief time to let apps complete their deferred activities. During this *maintenance window*, the system runs all pending syncs, jobs, and alarms, and lets apps access the network.

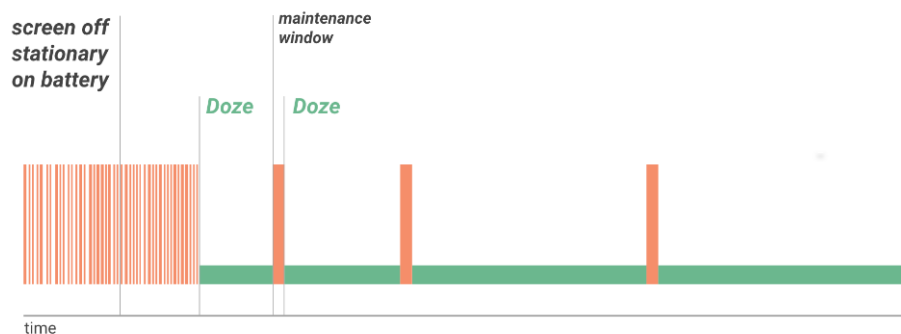


Figure 1. Doze provides a recurring maintenance window for apps to use the network and handle pending activities.

At the conclusion of each maintenance window, the system again enters Doze, suspending network access and deferring jobs, syncs, and alarms. Over time, the system schedules maintenance windows less and less frequently, helping to reduce battery consumption in cases of longer-term inactivity when the device is not connected to a charger.

As soon as the user wakes the device by moving it, turning on the screen, or connecting a charger, the system exits Doze and all apps return to normal activity.

The Doze restriction on network access is also likely to affect your app, especially if the app relies on real-time messages such as ticks or notifications. If your app requires a persistent connection to the network to receive messages, you should use [Firebase Cloud Messaging \(FCM\)](#) if possible.

; <https://developer.android.com/topic/performance/appstandby>:

App Standby Buckets

Android 9 (API level 28) and higher support **App Standby Buckets**. App Standby Buckets help the system prioritize apps' requests for resources based on how recently and how frequently the apps are used. Based on app usage patterns, each app is placed in one of five priority **buckets**. The system limits the device resources available to each app based on which bucket the app is in.

Priority buckets

The system dynamically assigns each app to a priority bucket, reassigning the apps as needed. The system may rely on a preloaded app that uses machine learning to determine how likely each app is to be used, and assigns apps to the appropriate buckets. If the system app is not present on a device, the system defaults to sorting apps based on how recently they were used. More active apps are assigned to buckets that give the apps higher priority, making more system resources available to the app. In particular, the bucket determines how frequently the app's jobs run, and how often the app can trigger alarms. These restrictions apply only while the device is on battery power; the system does not impose these restrictions on apps while the device is charging.

★ **Note:** Every manufacturer can set their own criteria for how non-active apps are assigned to buckets. You should not try to influence which bucket your app is assigned to. Instead, focus on making sure your app behaves well in whatever bucket it might be in. Your app can find out what bucket it's currently in by calling [`UsageStatsManager.getAppStandbyBucket\(\)`](#).

The buckets are:

1. **Active:** App is currently being used or was very recently used.
2. **Working set:** App is in regular use.
3. **Frequent:** App is often used, but not every day.
4. **Rare:** App is not frequently used.
5. **Restricted:** App consumes a great deal of system resources, or may exhibit undesirable behavior.

In addition, there's a special **never** bucket for apps that have been installed but have never been run. The system imposes severe restrictions on these apps.

; <https://developer.android.com/topic/performance/power/power-details>:

Power management restrictions



As described in [Power management](#), the system can impose power restrictions on apps for a number of reasons. The following table outlines the current restrictions. These restrictions do not apply while the device is charging.

In each case, the most restrictive applicable setting is the one that takes effect. For example, if Battery Saver is active and an app is in the Rare bucket, the more stringent App Standby Buckets restrictions on Firebase Cloud Messaging (FCM) are applied.

Setting	Jobs *	Alarms	Network †	Firebase Cloud Messaging §
User Restricts Background Activity				
Restrictions enabled:	Never	Never	No restriction	No restriction
Doze				
Doze active:	Deferred to window	Regular alarms: Deferred to window Inexact while-idle alarms: Limited to 1 per 9 minutes Exact while-idle alarms: Limited to 72 per hour	Deferred to window	High priority: No restriction Normal priority: Deferred to window
App Standby Buckets (by bucket)				
Active:	No restriction	No restriction	No restriction	No restriction
Working set:	Limited to 10 minutes every 2 hours	Limited to 10 per hour	No restriction	No restriction
Frequent:	Limited to 10 minutes every 8 hours	Limited to 2 per hour	No restriction	High priority: 10/day
Rare:	Limited to 10 minutes every 24 hours	Limited to 1 per hour	Disabled	High priority: 5/day
Restricted:	Once per day	One alarm per day, either an exact alarm or an inexact alarm	Disabled	High priority: 5/day

	; https://developer.android.com/topic/performance/background-optimization ; https://developer.android.com/reference/android/app/job/JobScheduler ; https://developer.android.com/guide/background/persistent ; https://developer.android.com/guide/components/activities/activity-lifecycle ;
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Activity-lifecycle concepts

To navigate transitions between stages of the activity lifecycle, the `Activity` class provides a core set of six callbacks: `onCreate()`, `onStart()`, `onResume()`, `onPause()`, `onStop()`, and `onDestroy()`. The system invokes each of these callbacks as the activity enters a new state.

Figure 1 presents a visual representation of this paradigm.

As the user begins to leave the activity, the system calls methods to dismantle the activity. In some cases, the activity is only partially dismantled and still resides in memory, such as when the user switches to another app. In these cases, the activity can still come back to the foreground.

If the user returns to the activity, it resumes from where the user left off. With a few exceptions, apps are [restricted from starting activities when running in the background](#).

The system's likelihood of killing a given process, along with the activities in it, depends on the state of the activity at the time. For more information on the relationship between state and vulnerability to ejection, see the section about [activity state and ejection from memory](#).

Depending on the complexity of your activity, you probably don't need to implement all the lifecycle methods. However, it's important that you understand each one and implement those that make your app behave the way users expect.

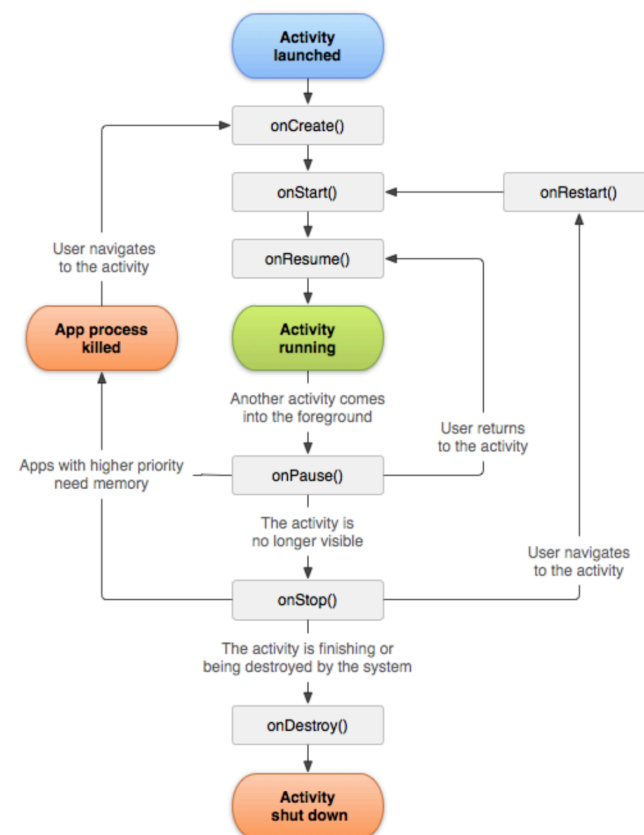


Figure 1. A simplified illustration of the activity lifecycle.

	<p>; https://developer.android.com/guide/components/activities/process-lifecycle; https://developer.android.com/guide/background; https://developer.android.com/about/versions/pie/android-9.0; https://developer.android.com/training/basics/network-ops/reading-network-state; https://developer.android.com/training/connectivity/network-access-optimization; https://developer.android.com/reference/android/net/NetworkCapabilities.</p>
<p>2. The non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises at least a portion of an application component or at least a portion of an operating system component, and wherein the one or more prospective or successful communications over the wireless network comprise an update to the first software component.</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises at least a portion of an application component or at least a portion of an operating system component, and wherein the one or more prospective or successful communications over the wireless network comprise an update to the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claim 1.</p> <p>As a further example, the Accused Instrumentalities comprise prospective or successful communications by applications or portions of applications (e.g., by checking for updates and new content) over wireless networks, e.g., when apps utilize network access, jobs, syncs, alarms, etc. <i>See</i>, e.g., https://developer.android.com/training/monitoring-device-state/doze-standby; https://developer.android.com/topic/performance/appstandby; https://developer.android.com/topic/performance/power/power-details; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler.</p>
<p>3. The non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with a network access, background signaling, a cloud synchronization service, an information feed, a download, an e-mail, a chat client, a security update, a peer-to-peer networking application update, a report of a</p>	<p>The Accused Instrumentalities comprise the “the one or more prospective or successful communications over the wireless network comprise a communication associated with a network access, background signaling, a cloud synchronization service, an information feed, a download, an e-mail, a chat client, a security update, a peer-to-peer networking application update, a report of a behavior associated with the wireless end-user device, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claim 1.</p> <p>As a further example, the Accused Instrumentalities comprise prospective or successful communications by applications or portions of applications (e.g., by checking for updates and new content) over wireless networks, e.g., when apps utilize network access, jobs, syncs, alarms, etc. <i>See</i>, e.g., https://developer.android.com/training/monitoring-device-state/doze-standby; https://developer.android.com/topic/performance/appstandby;</p>

<p>behavior associated with the wireless end-user device, or a combination of these.</p>	<p>https://developer.android.com/topic/performance/power/power-details; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler.</p>
<p>4. The non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with a content update or a content download.</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with a content update or a content download.”</p> <p><i>See</i>, for example, the disclosures identified for claim 1.</p> <p>As a further example, the Accused Instrumentalities comprise prospective or successful communications by applications or portions of applications (e.g., by checking for updates and new content) over wireless networks, e.g., when apps utilize network access, jobs, syncs, alarms, etc. <i>See, e.g.</i>, https://developer.android.com/topic/performance/power/power-details; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler.</p>
<p>5. The non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with an image, music, a video, an electronic book, an e-mail attachment, a content or media subscription, a news feed, a text message, a video chat, or a combination of these.</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with an image, music, a video, an electronic book, an e-mail attachment, a content or media subscription, a news feed, a text message, a video chat, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claim 1.</p> <p>As a further example, the Accused Instrumentalities comprise prospective or successful communications by applications or portions of applications (e.g., by checking for updates and new content) over wireless networks, e.g., when apps utilize network access, jobs, syncs, alarms, etc. <i>See, e.g.</i>, https://developer.android.com/training/monitoring-device-state/doze-standby; https://developer.android.com/topic/performance/appstandby; https://developer.android.com/topic/performance/power/power-details; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler.</p>
<p>6. The non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with a device application or widget, a device operating system function, a</p>

<p>communications over the wireless network comprise a communication associated with a device application or widget, a device operating system function, a file download, streaming media, a software update, a firmware update, a website, a connection to a server, a web browser, or a synchronization service.</p>	<p>file download, streaming media, a software update, a firmware update, a website, a connection to a server, a web browser, or a synchronization service.”</p> <p><i>See</i>, for example, the disclosures identified for claim 1.</p> <p>As a further example, the Accused Instrumentalities comprise prospective or successful communications by applications or portions of applications (e.g., by checking for updates and new content) over wireless networks, e.g., when apps utilize network access, jobs, syncs, alarms, etc. <i>See, e.g.</i>, https://developer.android.com/training/monitoring-device-state/doze-standby; https://developer.android.com/topic/performance/appstandby; https://developer.android.com/topic/performance/power/power-details; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler.</p>
<p>7. The non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises identify an intention to launch or start the first software component.</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises identify an intention to launch or start the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claim 1.</p> <p>As a further example, the Accused Instrumentalities comprise identifying an intention to launch or start the first software component. <i>See, e.g.</i>, https://developer.android.com/training/monitoring-device-state/doze-standby; https://developer.android.com/topic/performance/appstandby; https://developer.android.com/topic/performance/power/power-details; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler; https://developer.android.com/training/basics/network-ops/data-saver;</p>

Optimize network data usage

Over the life of a smartphone, the cost of a cellular data plan can easily exceed the cost of the device itself. On Android 7.0 (API level 24) and higher, users can enable Data Saver on a device-wide basis in order to optimize their device's data usage, and use less data. This ability is especially useful when roaming, near the end of the billing cycle, or for a small prepaid data pack.

When a user enables Data Saver in **Settings** and the device is on a metered network, the system blocks background data usage and signals apps to use less data in the foreground wherever possible. Users can allow specific apps to use background metered data usage even when Data Saver is turned on.

Android 7.0 (API level 24) extends the `ConnectivityManager` API to provide apps with a way to [retrieve the user's Data Saver preferences](#) and [monitor preference changes](#). It is considered good practice for apps to check whether the user has enabled Data Saver and make an effort to limit foreground and background data usage.

Check data saver preferences

On Android 7.0 (API level 24) and higher, apps can use the `ConnectivityManager` API to determine what data usage restrictions are being applied. The `getRestrictBackgroundStatus()` method returns one of the following values:

`RESTRICT_BACKGROUND_STATUS_DISABLED`

Data Saver is disabled.

`RESTRICT_BACKGROUND_STATUS_ENABLED`

The user has enabled Data Saver for this app. Apps should make an effort to limit data usage in the foreground and gracefully handle restrictions to background data usage.

`RESTRICT_BACKGROUND_STATUS_WHITELISTED`

The user has enabled Data Saver but the app is allowed to bypass it. Apps should still make an effort to limit foreground and background data usage.

Limit data usage whenever the device is connected to a metered network, even if Data Saver is disabled or the app is allowed to bypass it. The following sample code uses `ConnectivityManager.isActiveNetworkMetered()` and `ConnectivityManager.getRestrictBackgroundStatus()` to determine how much data the app should use:

; <https://developer.android.com/training/monitoring-device-state/doze-standby>;

Optimize for Doze and App Standby

Starting from Android 6.0 (API level 23), Android introduces two power-saving features that extend battery life for users by managing how apps behave when a device is not connected to a power source. *Doze* reduces battery consumption by deferring background CPU and network activity for apps when the device is unused for long periods of time. *App Standby* defers background network activity for apps with which the user has not recently interacted.

While the device is in Doze, apps' access to certain battery-intensive resources is deferred until maintenance windows. The specific restrictions are listed in [Power Management Restrictions](#).

Doze and App Standby manage the behavior of all apps running on Android 6.0 or higher, regardless whether they are specifically targeting API level 23. To ensure the best experience for users, test your app in Doze and App Standby modes and make any necessary adjustments to your code. The sections below provide details.

Understanding Doze

If a user leaves a device unplugged and stationary for a period of time, with the screen off, the device enters Doze mode. In Doze mode, the system attempts to conserve battery by restricting apps' access to network and CPU-intensive services. It also prevents apps from accessing the network and defers their jobs, syncs, and standard alarms.

Periodically, the system exits Doze for a brief time to let apps complete their deferred activities. During this *maintenance window*, the system runs all pending syncs, jobs, and alarms, and lets apps access the network.

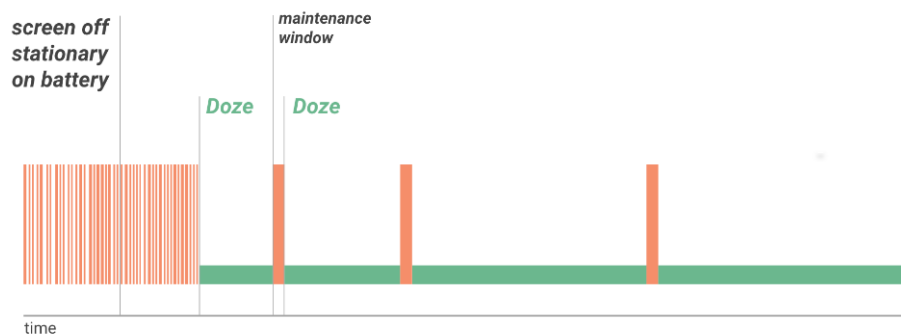


Figure 1. Doze provides a recurring maintenance window for apps to use the network and handle pending activities.

At the conclusion of each maintenance window, the system again enters Doze, suspending network access and deferring jobs, syncs, and alarms. Over time, the system schedules maintenance windows less and less frequently, helping to reduce battery consumption in cases of longer-term inactivity when the device is not connected to a charger.

As soon as the user wakes the device by moving it, turning on the screen, or connecting a charger, the system exits Doze and all apps return to normal activity.

The Doze restriction on network access is also likely to affect your app, especially if the app relies on real-time messages such as ticks or notifications. If your app requires a persistent connection to the network to receive messages, you should use [Firebase Cloud Messaging \(FCM\)](#) if possible.

; <https://developer.android.com/topic/performance/appstandby>:

App Standby Buckets

Android 9 (API level 28) and higher support **App Standby Buckets**. App Standby Buckets help the system prioritize apps' requests for resources based on how recently and how frequently the apps are used. Based on app usage patterns, each app is placed in one of five priority **buckets**. The system limits the device resources available to each app based on which bucket the app is in.

Priority buckets

The system dynamically assigns each app to a priority bucket, reassigning the apps as needed. The system may rely on a preloaded app that uses machine learning to determine how likely each app is to be used, and assigns apps to the appropriate buckets. If the system app is not present on a device, the system defaults to sorting apps based on how recently they were used. More active apps are assigned to buckets that give the apps higher priority, making more system resources available to the app. In particular, the bucket determines how frequently the app's jobs run, and how often the app can trigger alarms. These restrictions apply only while the device is on battery power; the system does not impose these restrictions on apps while the device is charging.

★ **Note:** Every manufacturer can set their own criteria for how non-active apps are assigned to buckets. You should not try to influence which bucket your app is assigned to. Instead, focus on making sure your app behaves well in whatever bucket it might be in. Your app can find out what bucket it's currently in by calling [`UsageStatsManager.getAppStandbyBucket\(\)`](#).

The buckets are:

1. **Active:** App is currently being used or was very recently used.
2. **Working set:** App is in regular use.
3. **Frequent:** App is often used, but not every day.
4. **Rare:** App is not frequently used.
5. **Restricted:** App consumes a great deal of system resources, or may exhibit undesirable behavior.

In addition, there's a special **never** bucket for apps that have been installed but have never been run. The system imposes severe restrictions on these apps.

; <https://developer.android.com/topic/performance/power/power-details>; <https://developer.android.com/topic/performance/background-optimization>; <https://developer.android.com/reference/android/app/job/JobScheduler>; <https://developer.android.com/guide/background/persistent>; <https://developer.android.com/guide/components/activities/process-lifecycle>;

1. A **foreground process** is one that is required for what the user is currently doing. Various application components can cause its containing process to be considered foreground in different ways. A process is considered to be in the foreground if any of the following conditions hold:

- It is running an `Activity` at the top of the screen that the user is interacting with (its `onResume()` method has been called).
- It has a `BroadcastReceiver` that is currently running (its `BroadcastReceiver.onReceive()` method is executing).
- It has a `Service` that is currently executing code in one of its callbacks (`Service.onCreate()`, `Service.onStart()`, or `Service.onDestroy()`).

There will only ever be a few such processes in the system, and these will only be killed as a last resort if memory is so low that not even these processes can continue to run. Generally, at this point, the device has reached a memory paging state, so this action is required in order to keep the user interface responsive.

; <https://developer.android.com/guide/background>;

	<div data-bbox="619 191 1201 235" data-label="Section-Header"> <h3>Definition of background work</h3> </div> <div data-bbox="615 267 1623 298" data-label="Text"> <p>An app is running in the <i>background</i> when both the following conditions are satisfied:</p> </div> <div data-bbox="653 334 1778 462" data-label="List-Group"> <ul style="list-style-type: none"> • None of the app's activities are currently visible to the user. • The app isn't running any foreground services that started while an activity from the app was visible to the user. </div> <div data-bbox="615 500 1178 531" data-label="Text"> <p>Otherwise, the app is running in the <i>foreground</i>.</p> </div>
<p>8. The non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises identify: an application identifier associated with the service usage activity or the first software component, an operating system function identifier associated with the service usage activity or the first software component, an aggregate service activity identifier, a component service activity identifier, or a combination of these.</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises identify: an application identifier associated with the service usage activity or the first software component, an operating system function identifier associated with the service usage activity or the first software component, an aggregate service activity identifier, a component service activity identifier, or a combination of these.”</p> <p>See, for example, the disclosures identified for claims 1-6.</p> <p>As a further example, the Accused Instrumentalities comprise application identifiers, processes, delegates, objects, scenes, task identifiers, etc. See, e.g., https://developer.android.com/build/configure-app-module:</p> <div data-bbox="602 1000 1001 1044" data-label="Section-Header"> <h3>Set the application ID</h3> </div> <div data-bbox="600 1075 1743 1141" data-label="Text"> <p>Every Android app has a unique application ID that looks like a Java or Kotlin package name, such as <i>com.example.myapp</i>. This ID uniquely identifies your app on the device and in the Google Play Store.</p> </div> <div data-bbox="642 1224 1896 1330" data-label="Text"> <p>★ Important: Once you publish your app, you should never change the application ID. If you change the application ID, Google Play Store treats the upload as a completely different app. If you want to upload a new version of your app, you must use the same application ID and signing certificate as when originally published.</p> </div>

; <https://developer.android.com/reference/android/app/job/JobInfo>:

Android Developers > Develop > Reference

Was this helpful?  

JobInfo

Added in API level 21

[Kotlin](#) | **Java**

```
public class JobInfo
extends Object implements Parcelable
```

[java.lang.Object](#)
↳ [android.app.job.JobInfo](#)

Container of data passed to the [JobScheduler](#) fully encapsulating the parameters required to schedule work against the calling application. These are constructed using the [JobInfo.Builder](#). The goal here is to provide the scheduler with high-level semantics about the work you want to accomplish.

Prior to Android version [Build.VERSION_CODES#Q](#), you had to specify at least one constraint on the JobInfo object that you are creating. Otherwise, the builder would throw an exception when building. From Android version [Build.VERSION_CODES#Q](#) and onwards, it is valid to schedule jobs with no constraints.

	<p>getId Added in API level 21</p> <pre>public int getId ()</pre> <p>Unique job id associated with this application (uid). This is the same job ID you supplied in the Builder constructor.</p> <p>; https://developer.android.com/guide/components/services.</p>
<p>9[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity results from cooperation between the first software component and at least one other software component, application, process, function, activity, or service, and wherein identify a service usage activity of the wireless end-user device comprises:</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity results from cooperation between the first software component and at least one other software component, application, process, function, activity, or service.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8.</p> <p>As a further example, the Accused Instrumentalities comprise multiple software components, applications, processes, functions, activities, or services that result in service usage activities, such as the Settings App co-operating with Data Saver, Power Saver, Doze Mode, App Standby, Adaptive Battery, or JobScheduler and/or one or more applications on a device resulting in service usage activities. <i>See, e.g.</i>, https://developer.android.com/training/basics/network-ops/data-saver:</p>

Optimize network data usage

Over the life of a smartphone, the cost of a cellular data plan can easily exceed the cost of the device itself. On Android 7.0 (API level 24) and higher, users can enable Data Saver on a device-wide basis in order to optimize their device's data usage, and use less data. This ability is especially useful when roaming, near the end of the billing cycle, or for a small prepaid data pack.

When a user enables Data Saver in **Settings** and the device is on a metered network, the system blocks background data usage and signals apps to use less data in the foreground wherever possible. Users can allow specific apps to use background metered data usage even when Data Saver is turned on.

Android 7.0 (API level 24) extends the `ConnectivityManager` API to provide apps with a way to [retrieve the user's Data Saver preferences](#) and [monitor preference changes](#). It is considered good practice for apps to check whether the user has enabled Data Saver and make an effort to limit foreground and background data usage.

Check data saver preferences

On Android 7.0 (API level 24) and higher, apps can use the `ConnectivityManager` API to determine what data usage restrictions are being applied. The `getRestrictBackgroundStatus()` method returns one of the following values:

`RESTRICT_BACKGROUND_STATUS_DISABLED`

Data Saver is disabled.

`RESTRICT_BACKGROUND_STATUS_ENABLED`

The user has enabled Data Saver for this app. Apps should make an effort to limit data usage in the foreground and gracefully handle restrictions to background data usage.

`RESTRICT_BACKGROUND_STATUS_WHITELISTED`

The user has enabled Data Saver but the app is allowed to bypass it. Apps should still make an effort to limit foreground and background data usage.

Limit data usage whenever the device is connected to a metered network, even if Data Saver is disabled or the app is allowed to bypass it. The following sample code uses `ConnectivityManager.isActiveNetworkMetered()` and `ConnectivityManager.getRestrictBackgroundStatus()` to determine how much data the app should use:

; <https://developer.android.com/training/monitoring-device-state/doze-standby>:

Optimize for Doze and App Standby

Starting from Android 6.0 (API level 23), Android introduces two power-saving features that extend battery life for users by managing how apps behave when a device is not connected to a power source. *Doze* reduces battery consumption by deferring background CPU and network activity for apps when the device is unused for long periods of time. *App Standby* defers background network activity for apps with which the user has not recently interacted.

While the device is in Doze, apps' access to certain battery-intensive resources is deferred until maintenance windows. The specific restrictions are listed in [Power Management Restrictions](#).

Doze and App Standby manage the behavior of all apps running on Android 6.0 or higher, regardless whether they are specifically targeting API level 23. To ensure the best experience for users, test your app in Doze and App Standby modes and make any necessary adjustments to your code. The sections below provide details.

Understanding Doze

If a user leaves a device unplugged and stationary for a period of time, with the screen off, the device enters Doze mode. In Doze mode, the system attempts to conserve battery by restricting apps' access to network and CPU-intensive services. It also prevents apps from accessing the network and defers their jobs, syncs, and standard alarms.

Periodically, the system exits Doze for a brief time to let apps complete their deferred activities. During this *maintenance window*, the system runs all pending syncs, jobs, and alarms, and lets apps access the network.

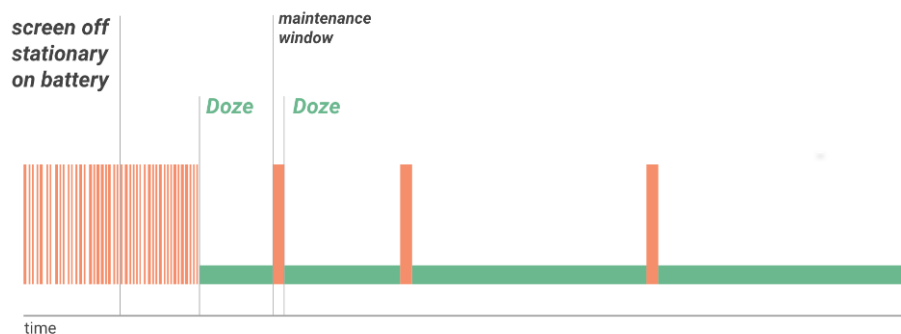


Figure 1. Doze provides a recurring maintenance window for apps to use the network and handle pending activities.

At the conclusion of each maintenance window, the system again enters Doze, suspending network access and deferring jobs, syncs, and alarms. Over time, the system schedules maintenance windows less and less frequently, helping to reduce battery consumption in cases of longer-term inactivity when the device is not connected to a charger.

As soon as the user wakes the device by moving it, turning on the screen, or connecting a charger, the system exits Doze and all apps return to normal activity.

The Doze restriction on network access is also likely to affect your app, especially if the app relies on real-time messages such as ticks or notifications. If your app requires a persistent connection to the network to receive messages, you should use [Firebase Cloud Messaging \(FCM\)](#) if possible.

; <https://developer.android.com/topic/performance/appstandby>:

App Standby Buckets

Android 9 (API level 28) and higher support **App Standby Buckets**. App Standby Buckets help the system prioritize apps' requests for resources based on how recently and how frequently the apps are used. Based on app usage patterns, each app is placed in one of five priority **buckets**. The system limits the device resources available to each app based on which bucket the app is in.

Priority buckets

The system dynamically assigns each app to a priority bucket, reassigning the apps as needed. The system may rely on a preloaded app that uses machine learning to determine how likely each app is to be used, and assigns apps to the appropriate buckets. If the system app is not present on a device, the system defaults to sorting apps based on how recently they were used. More active apps are assigned to buckets that give the apps higher priority, making more system resources available to the app. In particular, the bucket determines how frequently the app's jobs run, and how often the app can trigger alarms. These restrictions apply only while the device is on battery power; the system does not impose these restrictions on apps while the device is charging.

★ **Note:** Every manufacturer can set their own criteria for how non-active apps are assigned to buckets. You should not try to influence which bucket your app is assigned to. Instead, focus on making sure your app behaves well in whatever bucket it might be in. Your app can find out what bucket it's currently in by calling [UsageStatsManager.getAppStandbyBucket\(\)](#).

The buckets are:

1. **Active:** App is currently being used or was very recently used.
2. **Working set:** App is in regular use.
3. **Frequent:** App is often used, but not every day.
4. **Rare:** App is not frequently used.
5. **Restricted:** App consumes a great deal of system resources, or may exhibit undesirable behavior.

In addition, there's a special **never** bucket for apps that have been installed but have never been run. The system imposes severe restrictions on these apps.

	; https://developer.android.com/topic/performance/background-optimization ; https://developer.android.com/reference/android/app/job/JobScheduler ; https://developer.android.com/guide/background/persistent ; https://developer.android.com/guide/components/services .
9[b] identify a data flow to or from the at least one other software component, application, process, function, activity, or service; and	The Accused Instrumentalities further “identify a data flow to or from the at least one other software component, application, process, function, activity, or service.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8, and 9[a].
9[c] associate the data flow with the first software component.	The Accused Instrumentalities further “associate the data flow with the first software component.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8, and 9[a]-[b].
10. The non-transitory computer-readable storage medium recited in claim 9, wherein the first software component comprises at least a portion of an application, and wherein the at least one other software component, application, process, function, activity, or service performs a proxy function.	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 9, wherein the first software component comprises at least a portion of an application, and wherein the at least one other software component, application, process, function, activity, or service performs a proxy function.” <i>See</i> , for example, the disclosures identified for claims 1-6, and 8-9.
11. The non-transitory computer-readable storage medium recited in claim 9, wherein the at least one other software component, application, process, function, activity, or service performs a proxy function.	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 9, wherein the at least one other software component, application, process, function, activity, or service performs a proxy function.” <i>See</i> , for example, the disclosures identified for claims 1-6, and 8-9.
12. The non-transitory computer-readable storage medium recited	The Accused Instrumentalities comprise “nonnon-transitory computer-readable storage medium recited in claim 9, wherein the at least one other software component, application, process, function, activity, or service

<p>in claim 9, wherein the at least one other software component, application, process, function, activity, or service comprises a media service manager, an e-mail service manager, a domain name service (DNS) function, a software download service manager, a media download manager, a data download service manager, a media library function, a simple mail transfer protocol (SMTP) proxy, an Internet message access protocol (IMAP) proxy, a post office protocol (POP) proxy, a hypertext transfer protocol (HTTP) proxy, an instant messaging (IM) proxy, a virtual private network (VPN) service manager, or a secure socket layer (SSL) proxy.</p>	<p>comprises a media service manager, an e-mail service manager, a domain name service (DNS) function, a software download service manager, a media download manager, a data download service manager, a media library function, a simple mail transfer protocol (SMTP) proxy, an Internet message access protocol (IMAP) proxy, a post office protocol (POP) proxy, a hypertext transfer protocol (HTTP) proxy, an instant messaging (IM) proxy, a virtual private network (VPN) service manager, or a secure socket layer (SSL) proxy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6 and 8-9, as well as the following exemplary citations: https://developer.android.com/reference/java/net/URLConnection; https://developer.android.com/training/articles/security-ssl; https://developer.android.com/reference/android/net/DnsResolver; https://developer.android.com/guide/topics/media; https://developer.android.com/media; https://developer.android.com/guide/topics/media/platform/mediaplayer.</p>
<p>13[a]. The non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises:</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6 and 8-9.</p>
<p>13[b] monitor an application proxy service flow; and</p>	<p>The Accused Instrumentalities further “monitor an application proxy service flow.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6 and 8-9.</p>
<p>13[c] classify the application proxy service flow as being initiated by or belonging to the first software component.</p>	<p>The Accused Instrumentalities further “classify the application proxy service flow as being initiated by or belonging to the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6 and 8-9.</p>

14[a]. The non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6 and 8-9.</p>
14[b] associate an identifier identifying the first software component with a request to a proxy service;	<p>The Accused Instrumentalities further “associate an identifier identifying the first software component with a request to a proxy service.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6 and 8-9.</p>
14[c] associate the request to the proxy service with a traffic flow, the traffic flow comprising the service usage activity; and	<p>The Accused Instrumentalities further “associate the request to the proxy service with a traffic flow, the traffic flow comprising the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6 and 8-9.</p>
14[d] associate the traffic flow with the identifier.	<p>The Accused Instrumentalities further “associate the traffic flow with the identifier.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6 and 8-9.</p>
15. The non-transitory computer-readable storage medium recited in claim 14, wherein the identifier comprises a name, a fingerprint, an identification tag, a process number, or a credential.	<p>The Accused Instrumentalities further “non-transitory computer-readable storage medium recited in claim 14, wherein the identifier comprises a name, a fingerprint, an identification tag, a process number, or a credential.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6 and 8-9.</p>
16[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity results from cooperation between the first software component and a proxy function, and wherein identify a	<p>The Accused Instrumentalities comprises “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity results from cooperation between the first software component and a proxy function, and wherein identify a service usage activity of the wireless end-user device comprises.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>

service usage activity of the wireless end-user device comprises:	
16[b] identify a data flow to or from the proxy function; and	<p>The Accused Instrumentalities further “identify a data flow to or from the proxy function.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>
16[c] associate the data flow with the first software component.	<p>The Accused Instrumentalities further “associate the data flow with the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>
17. The non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises identify the service usage activity based on a stream, a flow, a destination, a port, a packet inspection, or a combination of these.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises identify the service usage activity based on a stream, a flow, a destination, a port, a packet inspection, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>
18. The non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises determine an identifier associated with the first software component, a number associated with the first software component, a name associated with the first software component, or a signature associated with the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises determine an identifier associated with the first software component, a number associated with the first software component, a name associated with the first software component, or a signature associated with the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>

19. The non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises at least a portion of an application on the wireless end-user device.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises at least a portion of an application on the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, and 14.</i></p>
20. The non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises an operating system component, function, or service.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises an operating system component, function, or service.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, and 14.</i></p>
21. The non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises a software function, utility, process, or tool.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises a software function, utility, process, or tool.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, and 14.</i></p>
22. The non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises a plurality of applications, processes, functions, activities, or services.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises a plurality of applications, processes, functions, activities, or services.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, and 14.</i></p>
23. The non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises a Java archive (JAR) file, an application that uses an operating system (OS) function, an application that uses a proxy service function, or an OS process function that supports an application or OS function.”	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises a Java archive (JAR) file, an application that uses an operating system (OS) function, an application that uses a proxy service function, or an OS process function that supports an application or OS function.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, and 14.</i></p>

proxy service function, or an OS process function that supports an application or OS function.

The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the network element is communicatively coupled to the wireless end-user device over the wireless network.”

See, for example, the disclosures identified for claims 1-6, 8-9, and 14.

As a further example, the Accused Instrumentalities communicate with network elements. *See, e.g.*, <https://www.t-mobile.com/cell-phone-plans>:

The screenshot displays the T-Mobile website's 'Compare our best unlimited cell phone plans' page. The header includes the T-Mobile logo and navigation links: Plans, Phones & devices, Deals, Coverage, and Join Us. On the right, there are links for Find a store, Contact & support, Cart, Search, and My account. The main heading is 'Compare our best unlimited cell phone plans.' Below this, a pink banner states 'T-Mobile plans offer wireless plus streaming for less than AT&T and Verizon.' A link for 'Compare pricing' is provided. A sub-header asks 'First, how many phone lines would you like?' with a selection of '3' under the 'Phones' category. Below this, a section 'Show discounts for:' includes buttons for 'Age 55+', 'Military & veteran', 'First responder', and 'None'. A box titled 'All plans include these great benefits:' lists: Unlimited 5G & 4G LTE data¹, Nationwide 5G coverage², Dedicated customer care, Unlimited talk & text, Premium benefits with Magenta Status, and Advanced scam-blocking protection². At the bottom, three plan cards are shown: 'Go5G Next' for \$180/mo. (with a 3rd line discount), 'Go5G Plus' for \$150/mo. (with a 3rd line free offer), and 'Essentials' for \$90/mo. (with a 3rd line free offer). Each card includes details about discounts, taxes, and upgrade policies.

24. The non-transitory computer-readable storage medium recited in claim 1, wherein the network element is communicatively coupled to the wireless end-user device over the wireless network.

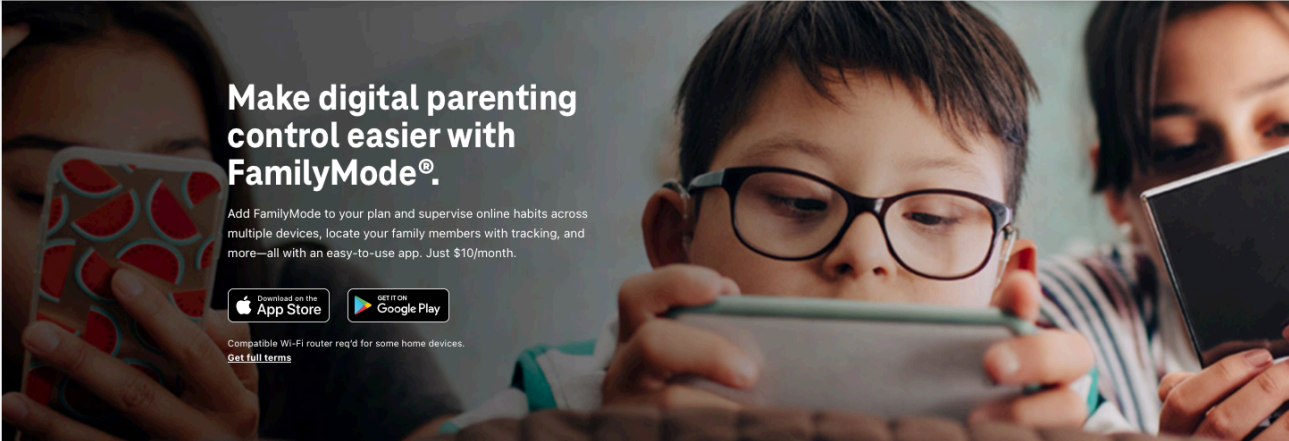
	<p>; https://www.t-mobile.com/cell-phone-plans/affordable-data-plans; https://www.t-mobile.com/cell-phone-plans/unlimited-55-senior-discount-plans?INTNAV=tNav:Plans:UnlimitedAge55; https://www.t-mobile.com/cell-phone-plans/military-discount-plans; https://www.t-mobile.com/cell-phone-plans/first-responder-discounts; https://www.t-mobile.com/home-internet/plans.</p>
<p>25. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on an amount of time, a time of day, a day of a week, a schedule, a network busy state, a network performance state, a network quality-of-service state, a priority of the service usage activity, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on an amount of time, a time of day, a day of a week, a schedule, a network busy state, a network performance state, a network quality-of-service state, a priority of the service usage activity, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, and 24.</p> <p>As a further example, the Accused Instrumentalities comprise policies based on network states. <i>See, e.g.</i>, https://developer.android.com/training/basics/network-ops/reading-network-state; https://developer.android.com/reference/android/net/NetworkCapabilities; https://developer.android.com/about/versions/pie/android-9.0.</p> <p>As a further example, the Accused Instrumentalities comprise policies based on based on an amount of time, a time of day, a day of a week, a schedule, or a combination of one of these or other policies comprised in the exemplary citations found in claims 1-6, 8-9, 14, and 24. <i>See, e.g.</i> https://www.t-mobile.com/apps/t-mobile-app; https://www.t-mobile.com/apps/t-mobile-family-mode:</p>

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T

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Add FamilyMode to your plan and supervise online habits across multiple devices, locate your family members with tracking, and more—all with an easy-to-use app. Just \$10/month.


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Compatible Wi-Fi router req'd for some home devices.
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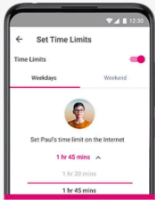
Your ultimate app for digital protection.

FamilyMode is a digital hub for online and real time safety for your whole family. It's ideal for online parental controls and keeping tabs on your family members virtually anywhere. FamilyMode has many features, including:



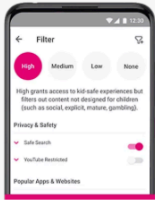
Locate your kids

Real-time location information helps you keep track of your family members and see where they've been.



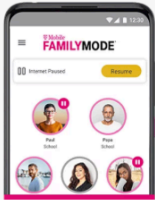
Monitor screen time.

Understand how your family spends time online, and help them develop good digital habits.



Set content filters.

Use pre-set or custom filters to help ensure your kids only see age-appropriate content online.



Manage internet use.

Set time limits for your family, pause internet access, or give screen time as a reward.

I'm here to help! 🗨️

; <https://www.t-mobile.com/support/devices/not-sold-by-t-mobile/byod-t-mobile-data-and-apn-settings>;
<https://www.t-mobile.com/support/tutorials/device/apple/iphone-x/topic/connections-amp-network/apn-and-data-settings>; <https://www.t-mobile.com/support/plans-features/familymode-app>;

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FamilyMode requirements

- One parent must be a T-Mobile primary account holder to sign up and create profiles
- FamilyMode's VPN must be enabled on a child's device for parental controls to work. If the child's device has low batteries, the VPN may stop operating which will impact performance
- Current software versions supported:
 - iOS version is 13.0 or greater
 - Android version is 9.0 or greater

First time setup

- + Sign up for FamilyMode ✓
- + Log in on the parent device ✓
- + Create profiles for your family ✓
- + Add a device to the profile ✓
- + Multiple Admin Parents ✓
- + Restrict app deletion on a child device (iOS) ✓
- + Restrict app deletion on a child device (Android) ✓
- + Advanced Parental Controls ✓
- Set up a lock code ✓
- + Recovering a lost or forgotten Lock Code ✓
- + Biometric login ✓

Manage internet usage

Changes to settings in the app may take up to five minutes to take effect. You can restart your device to have them take effect immediately

- + Set a Bedtime ▼
- + Set an Off Time ▼
- + Setting Time Limits ▼

Pause the internet

FamilyMode gives you the power to pause the whole network, individual family members, or even specific devices. In order to pause a whole wireless network or a device connected to Wi-Fi, you need to have the FamilyMode base station installed on your wireless network.

Pausing the internet may take up to 5 minutes on a child's device before the internet stops. Apps that do not require an internet connection, such as games, will not be impacted when the internet is paused.

- + Pause the whole family ▼
- + Pause a family member ▼
- + Pause a single device ▼

	<h2>Location & Safety Areas</h2> <p>All devices must be running FamilyMode 3.2 or newer for all services to work.</p> <ul style="list-style-type: none">+ Enable location sharing+ Create a Safety Area+ Check In+ SOS Family Alert+ Ring a lost device <h2>Send rewards</h2> <p>Rewards are an easy way to send extra online time, and they expire at midnight, so whatever time you added goes back to normal on the following day. You can send as many Rewards as you'd like throughout the day.</p> <ol style="list-style-type: none">1. Select a Profile from the home screen, then choose the star icon or select Rewards from the feature list.2. Pick the type of Reward you'd like to send:<ul style="list-style-type: none">• Extend a Time Limit Today• Disable an Off Time Today• Late Bedtime Tonight3. Set the Reward based on the existing settings, then select Send to finish.
<p>26. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a background service class, a background service state, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a background service class, a background service state, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

<p>27. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on at least an aspect of a service plan.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on at least an aspect of a service plan.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>28. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a behavior of the first software component, a behavior of the service usage activity, a messaging layer behavior, a random back-off, a power state of the wireless end-user device, a usage state of the wireless end-user device, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a behavior of the first software component, a behavior of the service usage activity, a messaging layer behavior, a random back-off, a power state of the wireless end-user device, a usage state of the wireless end-user device, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>29. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a user interaction with the first software component, a user interaction with the service usage activity, a user interaction with the wireless end-user device, a user interface priority of the service usage activity, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a user interaction with the first software component, a user interaction with the service usage activity, a user interaction with the wireless end-user device, a user interface priority of the service usage activity, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>30. The non-transitory computer-readable storage medium recited in claim 1, wherein the wireless end-user device is part of a device</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the wireless end-user device is part of a device group, and wherein the policy is associated with the device group.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

group, and wherein the policy is associated with the device group.	
31. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a type of the wireless network.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a type of the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
32. The non-transitory computer-readable storage medium recited in claim 31, wherein the type of the wireless network is cellular, 2G, 3G, 4G, home, roaming, wireless fidelity (WiFi), or a combination of these.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 31, wherein the type of the wireless network is cellular, 2G, 3G, 4G, home, roaming, wireless fidelity (WiFi), or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
33. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a roaming condition of the wireless end-user device, a cost associated with communicating over the wireless network, or a combination of these.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a roaming condition of the wireless end-user device, a cost associated with communicating over the wireless network, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p> <p>For further example, the policy can be based on a roaming condition of the wireless end-user device, or a combination of a roaming condition and a cost associated with the plan used to communicate over the wireless network. <i>See, e.g.</i>, https://www.t-mobile.com/support/coverage/domestic-roaming-data:</p>

SUPPORT > COVERAGE

Domestic roaming data

Data works a little differently when connected outside the T-Mobile network in the U.S. T-Mobile continues to invest billions in expanding network coverage and improving its network speed and performance. In locations in the U.S. where we do not yet have network coverage, we partner with other networks.

On this page:

- [How it works](#)
- [How much domestic roaming data do you get?](#)
- [Check and reduce data use](#)
- [What happens when your domestic roaming data is used](#)
- [FAQs](#)

How it works

When you travel outside of T-Mobile's U.S. network areas, your phone automatically switches to use one of our wireless network partners where available when you have data roaming enabled.

- Check out [our map of the network and roaming areas](#).
- T-Mobile coordinates with these partners to give our customers connectivity outside of our network. T-Mobile does not charge an additional fee for this service, but because we do not own these networks, there are limitations to data use.
- There may be times when your device still attempts to roam on another U.S. wireless network, even when you're within the T-Mobile coverage area. If you'd like to limit this, try the tips to [reduce data usage](#).

How to know if you're roaming domestically

The best way to check your active network is to go into the phone settings and check for the mobile network or phone status options. The process varies by device, and you can find it in your user guide.

- When roaming on these networks, you'll receive free usage alerts via text message to alert you if you approach/reach your available domestic roaming data.
- You can review the [T-Mobile coverage map](#) prior to traveling to determine if your destination is within a T-Mobile or partner network area.

; <https://www.t-mobile.com/support/coverage/international-roaming-services>.

34. The non-transitory computer-readable storage medium recited in claim 1, wherein controlling the service usage activity comprises preventing the first software component from launching, executing, or running.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein controlling the service usage activity comprises preventing the first software component from launching, executing, or running.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
35. The non-transitory computer-readable storage medium recited in claim 1, wherein the at least an aspect of the policy is based on the user input obtained through the user interface of the wireless end-user device, and wherein the user input identifies the first software component or the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the at least an aspect of the policy is based on the user input obtained through the user interface of the wireless end-user device, and wherein the user input identifies the first software component or the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
36. The non-transitory computer-readable storage medium recited in claim 1, wherein the at least an aspect of the policy is based on the user input obtained through the user interface of the wireless end-user device, and wherein the user input identifies a network parameter or a network type.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the at least an aspect of the policy is based on the user input obtained through the user interface of the wireless end-user device, and wherein the user input identifies a network parameter or a network type.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
37. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a usage limit or a threshold.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a usage limit or a threshold.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

As a further example, the policy may be based on a usage limit or a threshold such as a limit of the amount of data available for a given plan. *See, e.g.*, claims 1-6, 8-9, 14, 24 and 25;

; <https://www.t-mobile.com/support/plans-features/data-speeds>:

T-Mobile Fair Usage commitment to on-device usage

The T-Mobile Fair Usage commitment is how we ensure that the highest number of customers have the best possible experience for the most common uses on our network. The vast majority of customers on T-Mobile-branded and non-T-Mobile-branded, Sprint-branded, Metro by T-Mobile branded, and Assurance Wireless-branded plans receive higher priority than the small fraction of customers who are Heavy Data Users on their rate plan. For most T-Mobile-branded rate plans, a "Heavy Data User" is defined as a customer using more than 50GB of data in a billing cycle (100GB of data for new Magenta plans activated beginning February 24, 2021). The threshold number is periodically evaluated across our rate plans and brands to manage network traffic and deliver a good experience to all customers while offering a range of customer choices. You can always check the threshold amount for a rate plan by speaking with a representative, reviewing our rate cards or T-Mobile.com, or by logging in to T-Mobile.com or the T-Mobile app. The term "Heavy Data User" does not apply to customers on Magenta MAX, a new customer choice we are offering as we explore the expanding capacity of our 5G network, or on a small number of T-Mobile-branded business and government-oriented plans, which are not subject to a threshold.

Review [T-Mobile's Internet Disclosures](#) for full details and FAQs.

Older plans with data buckets

If you're on an old T-Mobile plan without unlimited high-speed data, your data feature may have a threshold on how much full speed data you can use during a billing cycle. After you pass the threshold, you can still access an unlimited amount of data, but the speed is reduced.

For example, a 2 GB data feature will provide 2 GB of full-speed access on the T-Mobile network. Once you use 2 GB of data, your data speed is reduced for the remainder of the bill cycle.

If you want to have more high-speed data, please consider upgrading to a newer plan, [Find the right plan for you](#).

; <https://www.t-mobile.com/support/plans-features/data-maximizer-for-prepaid-plans>:

SUPPORT > PLANS & FEATURES

Prepaid data plans & passes

Learn more about data options for your T-Mobile Prepaid account.

On this page:

- [Overview](#)
- [Data passes](#)
- [Data maximizer](#)

Overview

- Data varies by plan, to find out how much data you have used or have available, [log in to your T-Mobile Prepaid account](#) to check your usage.
- Understand and test [T-Mobile Data Speeds](#).
- To prevent running out of data during the month, learn to [manage data](#)
- Select Prepaid plans can be used as a [Smartphone Mobile Hotspot](#)

Data passes

Pass options

- On-Demand data passes:
 - Temporarily add high-speed data to your account and can be added to extend your monthly available high-speed data.
 - Once the high-speed data bucket is reached, unlimited data continues at reduced speeds. To continue service with high-speed data, another pass must be purchased.
 - On-Demand passes can be purchased with refill cards or prepaid service account balances.
- One-Day HD Video Streaming passes:
 - May be available in the US on the T-Mobile network only.
 - Prepaid HD Streaming passes do not have a resolution cap.
 - HD streaming is not available when roaming in Canada, Mexico, or while roaming.

; <https://www.t-mobile.com/support/plans-features/global-plus-15gb>:

	<div><div>SUPPORT > PLANS & FEATURES</div><div>Global PlusTM 15GB</div></div> <p>Global Plus 15GB provides extra traveling benefits on top of what you're already getting when you have a Magenta or ONE Plan.</p> <hr/> <p>On this page:</p> <ul style="list-style-type: none">• What you get with T-Mobile Global Plus 15GB• Cost & additional details• How to get Global Plus 15GB• Full terms <hr/> <h2>What you get with T-Mobile Global Plus 15GB</h2> <p>You can amp up the standard experience on your device by adding Global Plus 15GB for an additional cost. Here's what you get in addition to everything your Magenta and ONE Plan already offers:</p> <ul style="list-style-type: none">• 15GB high-speed data while roaming in 215+ countries and destinations• 5GB high-speed, international tethering in 215+ countries and destinations• 5GB high-speed data while roaming in Canada and Mexico• Unlimited texting and calling at \$0.00 per minute in and between 215+ countries and destinations• Stateside International Talk and Text• 50GB high-speed Mobile Hotspot in the U.S. After 50GB, speed reduces to 600kbps.• Unlimited HD video streaming (activate HD video streaming via T-Mobile app or My T-Mobile) domestic and abroad in 215+ countries and destinations• In-flight Wi-Fi & texting all flight long (unlimited flights/sessions) on Gogo-enabled domestic flights• Name ID & Voicemail to Text• Learn more about roaming and costs
<p>38. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a limit, wherein the limit is based on the user input obtained</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a limit, wherein the limit is based on the user input obtained through the user interface of the wireless end-user device, a user preference, an indication of a threshold, a total traffic, a type of traffic, a destination, a port, a frequency of access, an access behavior, or a combination of these.”</p>

through the user interface of the wireless end-user device, a user preference, an indication of a threshold, a total traffic, a type of traffic, a destination, a port, a frequency of access, an access behavior, or a combination of these.	<i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 37.
39. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a type of the service usage activity, a priority of the service usage activity, a duration of the service usage activity, a characteristic of the wireless network, a quality-of-service (QoS) rule associated with the service usage activity, or a combination of these.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a type of the service usage activity, a priority of the service usage activity, a duration of the service usage activity, a characteristic of the wireless network, a quality-of-service (QoS) rule associated with the service usage activity, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 37.</p>
40. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy comprises one or more filters, wherein the one or more filters provide filtering based on: a characteristic of the wireless network, a service plan applicable to the wireless end-user device, a characteristic of the first software component, a time of day, a network busy state, or a combination of these.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy comprises one or more filters, wherein the one or more filters provide filtering based on: a characteristic of the wireless network, a service plan applicable to the wireless end-user device, a characteristic of the first software component, a time of day, a network busy state, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 37.</p>

<p>41. The non-transitory computer-readable storage medium recited in claim 1, wherein the wireless network is a first wireless network, and wherein the service usage activity is a first service usage activity, and wherein the policy assists the one or more processors to control the first service usage activity when the wireless end-user device is connected to the first wireless network and refrain from controlling a second service usage activity when the wireless end-user device is connected to a second wireless network, the second service usage activity being associated with the first software component.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the wireless network is a first wireless network, and wherein the service usage activity is a first service usage activity, and wherein the policy assists the one or more processors to control the first service usage activity when the wireless end-user device is connected to the first wireless network and refrain from controlling a second service usage activity when the wireless end-user device is connected to a second wireless network, the second service usage activity being associated with the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 37.</p>
<p>42. The non-transitory computer-readable storage medium recited in claim 41, wherein control the first service usage activity comprises prevent, restrict, or block the first service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 41, wherein control the first service usage activity comprises prevent, restrict, or block the first service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 37, and 41.</p>
<p>43. The non-transitory computer-readable storage medium recited in claim 1, wherein the second wireless network is a wireless fidelity (WiFi) network or a home network.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the second wireless network is a wireless fidelity (WiFi) network or a home network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

<p>44. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether a user is interacting with or has interacted with the first software component.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether a user is interacting with or has interacted with the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>45. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is in a user interface foreground.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is in a user interface foreground.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>46. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is a software update.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is a software update.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>47. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is or has</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is or has been classified as being in a background state or the service usage activity is or has been classified as a background service.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

<p>been classified as being in a background state or the service usage activity is or has been classified as a background service.</p>	
<p>48. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is identified by a list specifying one or more background activities.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is identified by a list specifying one or more background activities.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>49. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is a foreground activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is a foreground activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>50. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is a foreground component.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is a foreground component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

<p>51[a] The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises:</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>51[b] determine a classification of the service usage activity, and</p>	<p>The Accused Instrumentalities further “determine a classification of the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>51[c] based on the classification of the service usage activity, determine whether the service usage activity comprises the background activity.</p>	<p>The Accused Instrumentalities “based on the classification of the service usage activity, determine whether the service usage activity comprises the background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>52. The non-transitory computer-readable storage medium recited in claim 51, wherein the classification of the service usage activity is based on: whether the first software component requires access to the wireless network, whether the one or more prospective or successful communications over the wireless network comprise an update to the first software component, whether the first software component requires information about the wireless network, whether the first software component requires location information, whether the one or more prospective or successful communications</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 51, wherein the classification of the service usage activity is based on: whether the first software component requires access to the wireless network, whether the one or more prospective or successful communications over the wireless network comprise an update to the first software component, whether the first software component requires information about the wireless network, whether the first software component requires location information, whether the one or more prospective or successful communications over the wireless network comprise an operating system software update, whether the one or more prospective or successful communications over the wireless network comprise a security software update, whether the one or more prospective or successful communications over the wireless network comprise a communication associated with a network-based back-up, whether the one or more prospective or successful communications over the wireless network comprise a communication associated with an e-mail download, whether the one or more prospective or successful communications over the wireless network comprise communications associated with a cloud synchronization service, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 51.</p>

<p>over the wireless network comprise an operating system software update, whether the one or more prospective or successful communications over the wireless network comprise a security software update, whether the one or more prospective or successful communications over the wireless network comprise a communication associated with a network-based back-up, whether the one or more prospective or successful communications over the wireless network comprise a communication associated with an e-mail download, whether the one or more prospective or successful communications over the wireless network comprise communications associated with a cloud synchronization service, or a combination of these.</p>	
<p>53. The non-transitory computer-readable storage medium recited in claim 51, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein determine a classification of the service usage activity is based on a characteristic of the first software component, a content type associated with the service usage activity, a characteristic of the wireless network, a service plan, a user preference, the first user input, a second user input, the information from the network element, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 51, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein determine a classification of the service usage activity is based on a characteristic of the first software component, a content type associated with the service usage activity, a characteristic of the wireless network, a service plan, a user preference, the first user input, a second user input, the information from the network element, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 51.</p>

<p>ated with the service usage activity, a characteristic of the wireless network, a service plan, a user preference, the first user input, a second user input, the information from the network element, or a combination of these.</p>	
<p>54. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity is based on a user interaction with the wireless end-user device.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 51, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein determine a classification of the service usage activity is based on a characteristic of the first software component, a content type associated with the service usage activity, a characteristic of the wireless network, a service plan, a user preference, the first user input, a second user input, the information from the network element, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>55. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether a value comprising a measure of the service usage activity satisfies a condition relative to a threshold.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether a value comprising a measure of the service usage activity satisfies a condition relative to a threshold.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>56. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is a foreground component or an unclassified component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

<p>first software component is a foreground component or an unclassified component.</p>	
<p>57. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is in a foreground of user interaction or determine whether the first software component is in a background of user interaction.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is in a foreground of user interaction or determine whether the first software component is in a background of user interaction.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>58. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether content associated with the service usage activity is in a foreground of a user interface of the wireless end-user device.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether content associated with the service usage activity is in a foreground of a user interface of the wireless end-user device.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>59. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is active.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is active.”</p> <p><i>S See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

<p>60. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in allowing, restricting, delaying, throttling, or preventing the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in allowing, restricting, delaying, throttling, or preventing the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>61. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in: blocking access to the wireless network, restricting access to the wireless network, delaying access to the wireless network, or aggregating and holding the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in: blocking access to the wireless network, restricting access to the wireless network, delaying access to the wireless network, or aggregating and holding the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>62. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in queuing, time-windowing, suspending, quarantining, killing, or removing the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in queuing, time-windowing, suspending, quarantining, killing, or removing the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
<p>63. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in preventing an update associated with the first software component.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in preventing an update associated with the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

<p>64. The non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise one or more Internet protocol (IP) address requests, and wherein apply the policy comprises at least assist in withholding, delaying, time-windowing, reducing in frequency, or aggregating at least a portion of the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise one or more Internet protocol (IP) address requests, and wherein apply the policy comprises at least assist in withholding, delaying, time-windowing, reducing in frequency, or aggregating at least a portion of the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>65. The non-transitory computer-readable storage medium recited in claim 1, wherein the information from the network element is first information, and wherein apply the policy comprises provide second information to the first software component.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the information from the network element is first information, and wherein apply the policy comprises provide second information to the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>66. The non-transitory computer-readable storage medium recited in claim 65, wherein provide second information to the first software component comprises provide the second information through an application programming interface.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 65, wherein provide second information to the first software component comprises provide the second information through an application programming interface.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 65.</i></p>
<p>67[a] The non-transitory computer-readable storage medium recited in claim 65, wherein, when</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 65, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p>

executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:	<i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 65.
67[b] provide third information to a second software component on the wireless end-user device, the third information being different from the second information.	The Accused Instrumentalities further “provide third information to a second software component on the wireless end-user device, the third information being different from the second information.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 65.
68. The non-transitory computer-readable storage medium recited in claim 67, wherein provide third information to a second software component on the wireless end-user device comprises provide the third information through an application programming interface.	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 67, wherein provide third information to a second software component on the wireless end-user device comprises provide the third information through an application programming interface.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 65, and 67.
69. The non-transitory computer-readable storage medium recited in claim 67, wherein the third information enables the second software component to communicate over the wireless network.	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 67, wherein the third information enables the second software component to communicate over the wireless network.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 65, and 67.
70. The non-transitory computer-readable storage medium recited in claim 65, wherein the wireless network is a first wireless network, and wherein the second information comprises a network access condition of the first wireless network, a network busy state associated with the first wireless network, a network availability state associated with the first wireless network, a network busy state associated with a second wireless network, a network availability state associated with the second wireless network, or information about the policy.”	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 65, wherein the wireless network is a first wireless network, and wherein the second information comprises a network access condition of the first wireless network, a network busy state associated with the first wireless network, a network availability state associated with the first wireless network, a network busy state associated with a second wireless network, a network availability state associated with the second wireless network, or information about the policy.”

<p>access condition of the first wireless network, a network busy state associated with the first wireless network, a network availability state associated with the first wireless network, a network busy state associated with a second wireless network, a network availability state associated with the second wireless network, or information about the policy.</p>	<p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 65, and 67.</p>
<p>71. The non-transitory computer-readable storage medium recited in claim 65, wherein the second information comprises a setting for assisting the first software component in restricting, allowing, blocking, throttling, deferring, time-scheduling, or queuing the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 65, wherein the second information comprises a setting for assisting the first software component in restricting, allowing, blocking, throttling, deferring, time-scheduling, or queuing the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 65.</p>
<p>72. The non-transitory computer-readable storage medium recited in claim 71, wherein the setting is based on a characteristic of the wireless network, a network busy state associated with the wireless network, a time, a service plan associated with the wireless end-user device, a classification of the service usage activity, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 71, wherein the setting is based on a characteristic of the wireless network, a network busy state associated with the wireless network, a time, a service plan associated with the wireless end-user device, a classification of the service usage activity, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 65, and 71.</p>

73. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises inform the first software component whether the first software component is allowed to access the wireless network.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises inform the first software component whether the first software component is allowed to access the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
74. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises inform the first software component whether the wireless network is available.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises inform the first software component whether the wireless network is available.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
75. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises inform the first software component of a traffic control to be implemented or applied by the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises inform the first software component of a traffic control to be implemented or applied by the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
76. The non-transitory computer-readable storage medium recited in claim 1, wherein the information from the network element is first information, and wherein apply the policy comprises obtain second information from the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the information from the network element is first information, and wherein apply the policy comprises obtain second information from the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

<p>77. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting, controlling, blocking, modifying, removing, or replacing a notification associated with the first software component or the service usage activity, the notification for presentation through a user interface of the wireless end-user device.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting, controlling, blocking, modifying, removing, or replacing a notification associated with the first software component or the service usage activity, the notification for presentation through a user interface of the wireless end-user device.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p> <p>As a further example, the Accused Instrumentalities cause a notification to be presented to a user. <i>See, e.g.</i>, https://source.android.com/docs/core/data/data-saver; https://developer.android.com/training/basics/network-ops/data-saver:</p> <h3>Check data saver preferences</h3> <p>On Android 7.0 (API level 24) and higher, apps can use the <code>ConnectivityManager</code> API to determine what data usage restrictions are being applied. The <code>getRestrictBackgroundStatus()</code> method returns one of the following values:</p> <p><code>RESTRICT_BACKGROUND_STATUS_DISABLED</code></p> <p>Data Saver is disabled.</p> <p><code>RESTRICT_BACKGROUND_STATUS_ENABLED</code></p> <p>The user has enabled Data Saver for this app. Apps should make an effort to limit data usage in the foreground and gracefully handle restrictions to background data usage.</p> <p><code>RESTRICT_BACKGROUND_STATUS_WHITELISTED</code></p> <p>The user has enabled Data Saver but the app is allowed to bypass it. Apps should still make an effort to limit foreground and background data usage.</p>
<p>78. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting, controlling, blocking,</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting, controlling, blocking, modifying, removing, or replacing a notification for presentation through a user interface of the wireless end-user device.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</p>

modifying, removing, or replacing a notification for presentation through a user interface of the wireless end-user device.	
79. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting a stack application programming interface (API) level or application messaging layer request.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the information from the network element is first information, and wherein apply the policy comprises obtain second information from the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>
80. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in killing or suspending the service usage activity or the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in killing or suspending the service usage activity or the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, and 14.</i></p>
81. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in changing or setting a priority of the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in changing or setting a priority of the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
82. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in emulating a network application	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in emulating a network application programming interface (API) message.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

programming interface (API) message.	
83. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting, modifying, blocking, removing, injecting, swapping, or replacing an application interface message.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting, modifying, blocking, removing, injecting, swapping, or replacing an application interface message.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>
84[a] The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
84[b] at least assist in preventing initiation of the service usage activity by the first software component; and	<p>The Accused Instrumentalities further comprise “at least assist in preventing initiation of the service usage activity by the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
84[c] send a message to the first software component.	<p>The Accused Instrumentalities further comprise “send a message to the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
85. The non-transitory computer-readable storage medium recited in claim 84, wherein initiation of the service usage activity by the first software component comprises opening of a connection, opening of a socket, initiating transmission, initiating a data flow, or initiating a data stream.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 84, wherein initiation of the service usage activity by the first software component comprises opening of a connection, opening of a socket, initiating transmission, initiating a data flow, or initiating a data stream.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

86. The non-transitory computer-readable storage medium recited in claim 84, wherein the message comprises a reset message, an indication that the service usage activity is not allowed, or an indication that the wireless network is not available.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 84, wherein the message comprises a reset message, an indication that the service usage activity is not allowed, or an indication that the wireless network is not available.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
87[a] The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
87[b] identify a socket to be opened for the service usage activity; and	<p>The Accused Instrumentalities further “identify a socket to be opened for the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
87[c] based on a condition, block the service usage activity or terminate the socket.	<p>The Accused Instrumentalities “based on a condition, block the service usage activity or terminate the socket.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
88. The non-transitory computer-readable storage medium recited in claim 1, wherein controlling the service usage activity comprises: blocking a network access event or attempt associated with the first software component, modulating a number of access events or attempts associated with the first software component, aggregating a plurality of access events or attempts associated with the first	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein controlling the service usage activity comprises: blocking a network access event or attempt associated with the first software component, modulating a number of access events or attempts associated with the first software component, aggregating a plurality of access events or attempts associated with the first software component, or time-windowing the number of access events or attempts associated with the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

software component, or time-windowing the number of access events or attempts associated with the first software component.	
89[a] The non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
89[b] if it is determined that the service usage activity is not the background activity, refrain from applying the policy.	<p>The Accused Instrumentalities further comprise “if it is determined that the service usage activity is not the background activity, refrain from applying the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
90[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
90[b] if it is determined that the service usage activity is not the background activity, apply a second policy.	<p>The Accused Instrumentalities further comprise “if it is determined that the service usage activity is not the background activity, apply a second policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

<p>91. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises cause a notification to be presented through a user interface of the wireless end-user device.</p>	<p>The Accused Instrumentalities further comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises cause a notification to be presented through a user interface of the wireless end-user device.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</p>
<p>92. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about the policy.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</p>
<p>93. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about an option to set, control, override, or modify the at least an aspect of the policy or a second aspect of the policy.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about an option to set, control, override, or modify the at least an aspect of the policy or a second aspect of the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</p>
<p>94. The non-transitory computer-readable storage medium recited in claim 91, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to obtain an indication of a user response to the notification.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to obtain an indication of a user response to the notification.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</p>

<p>95. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides a warning or an alert.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides a warning or an alert.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>
<p>96. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about a service plan limit.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about a service plan limit.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>
<p>97. The non-transitory computer-readable storage medium recited in claim 91, wherein the first software component is at least a portion of an application, and wherein the one or more prospective or successful communications over the wireless network comprise an attempt to launch, run, or execute the application, and wherein the notification comprises information about the attempt to launch, run, or execute the application.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the first software component is at least a portion of an application, and wherein the one or more prospective or successful communications over the wireless network comprise an attempt to launch, run, or execute the application, and wherein the notification comprises information about the attempt to launch, run, or execute the application.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>
<p>98. The non-transitory computer-readable storage medium recited in claim 91, wherein the one or more prospective or successful communications over the wireless network comprise an attempted or successful launch or execution of the first software component, and wherein the notification comprises</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the one or more prospective or successful communications over the wireless network comprise an attempted or successful launch or execution of the first software component, and wherein the notification comprises information about the attempted or successful launch or execution of the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>

<p>information about the attempted or successful launch or execution of the first software component.</p>	
<p>99. The non-transitory computer-readable storage medium recited in claim 91, wherein the policy is based on a limit, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to determine that a data usage associated with the service usage activity is not less than the limit, and wherein cause a notification to be presented through a user interface of the wireless end-user device comprises trigger presentation of the notification based on the determination that the data usage associated with the service usage activity is not less than the limit.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the policy is based on a limit, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to determine that a data usage associated with the service usage activity is not less than the limit, and wherein cause a notification to be presented through a user interface of the wireless end-user device comprises trigger presentation of the notification based on the determination that the data usage associated with the service usage activity is not less than the limit.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>
<p>100. The non-transitory computer-readable storage medium recited in claim 91, wherein the one or more prospective or successful communications over the wireless network comprise an attempt to download or load an application, and wherein the notification com-</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the one or more prospective or successful communications over the wireless network comprise an attempt to download or load an application, and wherein the notification comprises information about the attempted download or load of the application.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>

<p>prises information about the attempted download or load of the application.</p>	
<p>101. The non-transitory computer-readable storage medium recited in claim 91, wherein the one or more prospective or successful communications over the wireless network comprise an attempt to initiate usage of a cloud-based service or application, and wherein the notification comprises information about the attempted initiation of usage of the cloud-based service or application.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the one or more prospective or successful communications over the wireless network comprise an attempt to initiate usage of a cloud-based service or application, and wherein the notification comprises information about the attempted initiation of usage of the cloud-based service or application.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</p>
<p>102. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification indicates that one or more service usage activities are subject to the policy.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification indicates that one or more service usage activities are subject to the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</p>
<p>103. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about a second network.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about a second network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</p>
<p>104. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification comprises an offer for a service plan upgrade or downgrade.</p>	<p>The Accused Instrumentalities comprise “-transitory computer-readable storage medium recited in claim 91, wherein the notification comprises an offer for a service plan upgrade or downgrade.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</p>

105. The non-transitory computer-readable storage medium recited in claim 91, wherein apply the policy further comprises obtain an indication of a user preference in response to the notification.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein apply the policy further comprises obtain an indication of a user preference in response to the notification.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</p>
106. The non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to associate the policy with a second software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to associate the policy with a second software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 105.</p>
107. The non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to allow or block the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to allow or block the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 105.</p>
108. The non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference identifies a traffic control setting associated with the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference identifies a traffic control setting associated with the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 105.</p>
109. The non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to allow the	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to allow the service usage activity under a specified condition.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 105.</p>

service usage activity under a specified condition.	
110. The non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to override or modify the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to override or modify the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 105.</p>
111. The non-transitory computer-readable storage medium recited in claim 91, wherein cause a notification to be presented through a user interface of the wireless end-user device comprises cause the notification to be presented based on occurrence of a trigger.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein cause a notification to be presented through a user interface of the wireless end-user device comprises cause the notification to be presented based on occurrence of a trigger.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</p>
112. The non-transitory computer-readable storage medium recited in claim 111, wherein the trigger is: a measure of the service usage activity satisfies a first condition relative to a threshold, an aspect of the service usage activity satisfies a second condition, a change to the policy, or a message from the network element.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 111, wherein the trigger is: a measure of the service usage activity satisfies a first condition relative to a threshold, an aspect of the service usage activity satisfies a second condition, a change to the policy, or a message from the network element.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 111.</p>
113. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification enables a user associated with	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification enables a user associated with the wireless end-user device to obtain information about at least an aspect of the service usage activity or a service plan associated with the wireless end-user device.”</p>

the wireless end-user device to obtain information about at least an aspect of the service usage activity or a service plan associated with the wireless end-user device.	<i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.
114. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification presents a list of service usage activities or software components, the list of service usage activities or software components including the service usage activity or the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification presents a list of service usage activities or software components, the list of service usage activities or software components including the service usage activity or the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</p>
115. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification presents an option to modify the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification presents an option to modify the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</p>
116. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification presents an indication of a measure of usage of the wireless network associated with the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification presents an indication of a measure of usage of the wireless network associated with the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</p>
117. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification is provided through an e-mail,	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification is provided through an e-mail, a text message, a window, a setting, or a voice message.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</p>

a text message, a window, a setting, or a voice message.	
118[a] The non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>
118[b] cause a notification to be presented through a user interface of the wireless end-user device.	<p>The Accused Instrumentalities further “cause a notification to be presented through a user interface of the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>
119. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification provides information about the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification provides information about the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 118.</i></p>
120. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification provides information about an option to set, control, override, or modify the at least an aspect of the policy or a second aspect of the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification provides information about an option to set, control, override, or modify the at least an aspect of the policy or a second aspect of the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 118.</i></p>
121. The non-transitory computer-readable storage medium recited	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification indicates that the service usage activity is the background activity.”</p>

in claim 118, wherein the notification indicates that the service usage activity is the background activity.	<i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 118.
122. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification provides information about a second network.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification provides information about a second network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 118.</p>
123. The non-transitory computer-readable storage medium recited in claim 118, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to obtain an indication of a user preference in response to the notification.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to obtain an indication of a user preference in response to the notification.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 118.</p>
124. The non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user directive to associate the policy with the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user directive to associate the policy with the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, 118, and 123.</p>
125. The non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user directive to restrict,	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user directive to restrict, allow, or block the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, 118, and 123.</p>

allow, or block the service usage activity.	
126. The non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference identifies a traffic control setting associated with the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference identifies a traffic control setting associated with the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 123.</i></p>
127. The non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user directive to override or modify the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user directive to override or modify the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 123.</i></p>
128. The non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user acknowledgment of the notification.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user acknowledgment of the notification.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 123.</i></p>
129. The non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference indicates one or more network types.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference indicates one or more network types.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 123.</i></p>
130. The non-transitory computer-readable storage medium recited in claim 129, wherein the one or more network types comprise	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 129, wherein the one or more network types comprise WiFi, 4G, 3G, wireless, wired, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 123.</i></p>

WiFi, 4G, 3G, wireless, wired, or a combination of these.	
131. The non-transitory computer-readable storage medium recited in claim 118, wherein cause a notification to be presented through a user interface of the wireless end-user device comprises cause the notification to be presented based on occurrence of a trigger.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein cause a notification to be presented through a user interface of the wireless end-user device comprises cause the notification to be presented based on occurrence of a trigger.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
132. The non-transitory computer-readable storage medium recited in claim 131, wherein the trigger is: a measure of the service usage activity satisfies a first condition relative to a threshold, an aspect of the service usage activity satisfies a second condition, a change to the policy, or a message from the network element.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 131, wherein the trigger is: a measure of the service usage activity satisfies a first condition relative to a threshold, an aspect of the service usage activity satisfies a second condition, a change to the policy, or a message from the network element.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 131.</i></p>
133. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification enables a user associated with the wireless end-user device to obtain information about at least an aspect of the service usage activity or a service plan associated with the wireless end-user device.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification enables a user associated with the wireless end-user device to obtain information about at least an aspect of the service usage activity or a service plan associated with the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>

134. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents a list of service usage activities or software components, the list of service usage activities or software components including the service usage activity or the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents a list of service usage activities or software components, the list of service usage activities or software components including the service usage activity or the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
135. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about a setting associated with the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about a setting associated with the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
136. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about the wireless network.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about the wireless network.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
137. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents an indication of a measure of usage of the wireless network associated with the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about the wireless network.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
138. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about a	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about a network busy state or a network availability state.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>

network busy state or a network availability state.	
139. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents an indication of a measure of usage of the wireless network associated with the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents an indication of a measure of usage of the wireless network associated with the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
140. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about a statistic associated with the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about a statistic associated with the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
141. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a gauge providing service usage information associated with the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a gauge providing service usage information associated with the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
142. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a gauge providing service usage information associated with one or more networks, the one or more networks including the wireless network.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a gauge providing service usage information associated with one or more networks, the one or more networks including the wireless network.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>

143. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a gauge providing information associated with a service plan.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a gauge providing information associated with a service plan.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
144. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification is provided through an e-mail, a text message, a window, a setting, or a voice message.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification is provided through an e-mail, a text message, a window, a setting, or a voice message.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
145. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a warning or an alert.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a warning or an alert.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
146. The non-transitory computer-readable storage medium recited in claim 118, wherein the information from the network element is first information, and wherein the notification is based on second information from the network element.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the information from the network element is first information, and wherein the notification is based on second information from the network element.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
147. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises information about a cost or a charge associated with the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises information about a cost or a charge associated with the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>

148. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises information about a service sponsor.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises information about a service sponsor.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
149[a] The non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
149[b] detect an attempted use of the first software component; and	<p>The Accused Instrumentalities further “detect an attempted use of the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
149[c] based on the detected attempted use of the first software component, cause a notification to be presented through a user interface of the wireless end-user device.	<p>The Accused Instrumentalities “based on the detected attempted use of the first software component, cause a notification to be presented through a user interface of the wireless end-user device.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
150. The non-transitory computer-readable storage medium recited in claim 149, wherein the notification provides information to enable a user associated with the wireless end-user device to override the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 149, wherein the notification provides information to enable a user associated with the wireless end-user device to override the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 149.</p>

<p>151. The non-transitory computer-readable storage medium recited in claim 149, wherein the notification provides information about a cost or a charge associated with the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 149, wherein the notification provides information about a cost or a charge associated with the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 149.</i></p>
<p>152. The non-transitory computer-readable storage medium recited in claim 149, wherein the notification provides information to enable a user associated with the wireless end-user device to change or upgrade a service plan associated with the wireless end-user device.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 149, wherein the notification provides information to enable a user associated with the wireless end-user device to change or upgrade a service plan associated with the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 149.</i></p>
<p>153. The non-transitory computer-readable storage medium recited in claim 1, wherein the at least an aspect of a policy is based on the user input obtained through the user interface of the wireless end-user device, and wherein the user input specifies a user preference associated with one or more network types.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the at least an aspect of a policy is based on the user input obtained through the user interface of the wireless end-user device, and wherein the user input specifies a user preference associated with one or more network types.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 149.</i></p>
<p>154. The non-transitory computer-readable storage medium recited in claim 153, wherein the one or more network types comprise wireless fidelity (WiFi), home, roaming, 4G, 3G, wireless, wired, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 153, wherein the one or more network types comprise wireless fidelity (WiFi), home, roaming, 4G, 3G, wireless, wired, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 149.</i></p>

<p>155. The non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein the policy is a first policy, and wherein the first user input or a second user input comprises a directive to apply a second policy to a second software component of the plurality of software components on the wireless end-user device.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein the policy is a first policy, and wherein the first user input or a second user input comprises a directive to apply a second policy to a second software component of the plurality of software components on the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>
<p>156. The non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein the first user input or a second user input comprises a directive to refrain from applying the policy to a second software component of the plurality of software components on the wireless end-user device.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein the first user input or a second user input comprises a directive to refrain from applying the policy to a second software component of the plurality of software components on the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>157. The non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device comprises a directive to apply the</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device comprises a directive to apply the policy to a second software component of the plurality of software components on the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>

<p>policy to a second software component of the plurality of software components on the wireless end-user device.</p>	
<p>158. The non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device specifies a user preference associated with the service usage activity or the first software component.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device specifies a user preference associated with the service usage activity or the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>159. The non-transitory computer-readable storage medium recited in claim 158, wherein the user preference comprises a preference to restrict, allow, block, delay, or throttle the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 158, wherein the user preference comprises a preference to restrict, allow, block, delay, or throttle the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>160[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the wireless network is a first wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the wireless network is a first wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>

<p>160[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network; and</p>	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>160[c] refrain from applying the policy to the second service usage activity.</p>	<p>The Accused Instrumentalities further “refrain from applying the policy to the second service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>161[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the background activity is a first background activity, and wherein the wireless network is a first wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the background activity is a first background activity, and wherein the wireless network is a first wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>

<p>161[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network; and</p>	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>161[c] determine whether the second service usage activity is a second background activity;</p>	<p>The Accused Instrumentalities further “determine whether the second service usage activity is a second background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>161[d] if it is determined that the second service usage activity is the second background activity, apply a second policy to the second service usage activity.</p>	<p>The Accused Instrumentalities “if it is determined that the second service usage activity is the second background activity, apply a second policy to the second service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>162. The non-transitory computer-readable storage medium recited in claim 161, wherein the first policy restricts or prevents the first background activity, and wherein the second policy allows the second background activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 161, wherein the first policy restricts or prevents the first background activity, and wherein the second policy allows the second background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>

<p>163[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the wireless network is a first wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the wireless network is a first wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>163[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network; and</p>	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>163[c] apply a second policy to the second service usage activity.</p>	<p>The Accused Instrumentalities further “apply a second policy to the second service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>

<p>164. The non-transitory computer-readable storage medium recited in claim 163, wherein the second policy comprises a control policy, a notification policy, or an accounting policy associated with the first software component or the second software component.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 163, wherein the second policy comprises a control policy, a notification policy, or an accounting policy associated with the first software component or the second software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>165[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the first wireless network, and wherein the background activity is a first background activity, and wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the first wireless network, and wherein the background activity is a first background activity, and wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>

<p>165[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;</p>	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>165[c] determine whether the second service usage activity is a second background activity; and</p>	<p>The Accused Instrumentalities further “determine whether the second service usage activity is a second background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>165[d] if it is determined that the second service usage activity is the second background activity, apply at least a portion of the policy, wherein the at least a portion of the policy is based on a second user input.</p>	<p>The Accused Instrumentalities “if it is determined that the second service usage activity is the second background activity, apply at least a portion of the policy, wherein the at least a portion of the policy is based on a second user input.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>166[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>

<p>communications over the wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:</p>	
<p>166[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;</p>	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>166[c] determine whether the second service usage activity is the background activity; and</p>	<p>The Accused Instrumentalities further “determine whether the second service usage activity is the background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>166[d] if it is determined that the second service usage activity is the background activity, refrain from applying at least a portion of the policy.</p>	<p>The Accused Instrumentalities “if it is determined that the second service usage activity is the background activity, refrain from applying at least a portion of the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>167[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the background activity is a first background activity, and wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the</p>

<p>background activity is a first background activity, and wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:</p>	<p>wireless network are first one or more prospective or successful communications over the wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>167[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;</p>	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>167[c] determine whether the second service usage activity is a second background activity;</p>	<p>The Accused Instrumentalities further “determine whether the second service usage activity is a second background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>

<p>167[d] obtain a second policy, the second policy to be applied when the second service usage activity is the second background activity, the second policy for controlling the second service usage activity; and</p>	<p>The Accused Instrumentalities further “obtain a second policy, the second policy to be applied when the second service usage activity is the second background activity, the second policy for controlling the second service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>167[e] if it is determined that the second service usage activity is the second background activity, apply the second policy.</p>	<p>The Accused Instrumentalities “if it is determined that the second service usage activity is the second background activity, apply the second policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>168. The non-transitory computer-readable storage medium recited in claim 167, wherein the first policy, the second policy, or both are based on a network busy state, a network availability state, or a cost associated with the wireless network.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 167, wherein the first policy, the second policy, or both are based on a network busy state, a network availability state, or a cost associated with the wireless network.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>169[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein, when executed by the one or more processors of the wireless end-user</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>

device, the machine-executable instructions further cause the one or more processors to:	
169[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;	<p>The Accused Instrumentalities comprise “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component, the second service usage activity comprising second one or more prospective or successful communications over the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
169[c] determine whether the second service usage activity is the background activity; and	<p>The Accused Instrumentalities comprise “determine whether the second service usage activity is the background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
169[d] if it is determined that the second service usage activity is the background activity, apply at least a portion of the policy.	<p>The Accused Instrumentalities comprise “if it is determined that the second service usage activity is the background activity, apply at least a portion of the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
170. The non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to monitor the service usage activity, account for the service usage activity, report	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to monitor the service usage activity, account for the service usage activity, report information about the service usage activity, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>

information about the service usage activity, or a combination of these.	
171. The wireless end-user device embodying the non-transitory computer-readable storage medium recited in claim 1.	<p>The Accused Instrumentalities “embody[] the non-transitory computer-readable storage medium recited in claim 1.”</p> <p><i>See</i>, for example, the disclosures identified for claim 1.</p>
172. The non-transitory computer-readable storage medium recited in claim 1, wherein the network element comprises a service controller, a server, a cloud element, or a billing element.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the network element comprises a service controller, a server, a cloud element, or a billing element.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
173. The non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to provide information about the service usage activity to the network element.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to provide information about the service usage activity to the network element.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
174[a] The non-transitory computer-readable storage medium recited in claim 173, wherein the information about the service usage activity comprises a count of data traffic associated with the service usage activity, a transaction	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 173, wherein the information about the service usage activity comprises a count of data traffic associated with the service usage activity, a transaction count, a message count, a connection time, a connection duration, a classification of traffic, an indication that a measure of the service usage activity satisfies a condition relative to a threshold, a parameter associated with the service usage activity, an indication that the background activity is restricted, or a combination of these.”</p>

count, a message count, a connection time, a connection duration, a classification of traffic, an indication that a measure of the service usage activity satisfies a condition relative to a threshold, a parameter associated with the service usage activity, an indication that the background activity is restricted, or a combination of these.	<i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, 78, and 173.
174[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component, the second service usage activity comprising second one or more prospective or successful communications over the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, 78, and 173.</p>
174[c] determine whether the second service usage activity is the background activity; and	<p>The Accused Instrumentalities further “determine whether the second service usage activity is the background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, 78, and 173.</p>
174[d] if it is determined that the second service usage activity is the background activity, apply at least a portion of the policy.	<p>The Accused Instrumentalities “if it is determined that the second service usage activity is the background activity, apply at least a portion of the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, 78, and 173.</p>

